



# THE ASSAM GAZETTE

অসাধাৰণ

EXTRAORDINARY

প্ৰাপ্ত কৰ্তৃত্বৰ দ্বাৰা প্ৰকাশিত

PUBLISHED BY THE AUTHORITY

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নং ২৭৭ দিশপুৰ, বৃহস্পতিবাৰ, ২২ জুন, ২০২৩, ১ আশাৰ, ১৯৪৫ (শক)  
No. 279 Dispur, Thursday, 22nd June, 2023, 1st Asadha, 1945 (S. E.)

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GOVERNMENT OF ASSAM

ORDERS BY THE GOVERNOR

DEPARTMENT OF HOUSING AND URBAN AFFAIRS

## NOTIFICATION

The 18th April, 2023

**ECF No. 293174/2023/110.-** In exercise of the powers conferred by the Section 9 and Sub-section 1 of Section 10 of the Assam Town & Country Planning Act, 1959 (as amended) and (Assam Act II of 1960) read with sub-rule (I) of Rules 3 of the Assam Town and Country Planning (Publication of Master Plan and Zoning Regulations ) Rules 1962, the Governor of Assam is pleased to publish the following notice regarding the publication of the Draft Master plan for Sorbhog.

### **Notice for the Publication of Draft Master Plan for Sorbhog**

- It is notified that the Draft Master plan for Sorbhog prepared by the Directorate of Town & Country Planning, Assam, Town & Country Planning Act, 1959 (as amended) read with sub-section 1 of Section 10 of Assam Town & Country Planning Act, 1959 (as amended) for the area as described in the schedule below is hereby published.
- Any person or persons affected by the Draft Master Plan may submit their objections or opinions in writing to the Director, Town & Country Planning, Assam, Dispur, Guwahati-6 within two months from the date of publication.
- The Draft Master plan for Sorbhog with all relevant papers and maps may be inspected free of Cost during the office hours at the Office of the Director, Town & Country Planning, Assam, Dispur, Guwahati-6, the Deputy Director, Town & Country Planning, District Office- Barpeta,

- (c) The Draft Master plan for Sorbhog with all relevant papers and maps may be inspected free of Cost during the office hours at the Office of the Director, Town & Country Planning, Assam, Dispur, Guwahati-6, the Deputy Director, Town & Country Planning, District Office- Barpeta, the Circle Office, Sorbhog Revenue Circle, Sorbhog, office of the Chairman, Sorbhog Municipal Board, Sorbhog, Copies of the Draft Master Plan for Sorbhog are available at the office of the Deputy Director, Town & Country Planning, Dist Office-Barpeta for sale on payment.

### **SCHEDULE**

#### **A. SITUATION AND AREA: -**

District	:	Barpeta
Sub-Division	:	Barpeta
Police Station	:	Sorbhog
State	:	Assam

Approximate Draft Master Plan area: 39.53 sq. km / 3953.00 hectares

Municipal area : 3.65 Sq.km

Population : 32.381 (as per Census 2011)

#### **B. REVENUE AREAS INCLUDED IN THE MASTER PLAN AREA FOR SORBHOG ARE:**

##### **Mouza**

##### **Villages (21)**

Damka Chaka  
Boushi

Sahpur, Sorbhog Gaon, Puthimari, Duramari, Ahom  
Pathar, Santra Daha, Bairapur, Kalitapara, Nuntola,  
Rampur, Gella Para, Uttar Ganakgari, Bandarkhowa,  
Batabari, Amguri, Santabari, Ketekibari, Dakshin  
Ganakgari, Baregaon, Niz Damaka, Sorbhog T.C. Area.

#### **C. DESCRIPTION OF THE BOUNDARIES :**

North- Kayastha Gaon, Pera Gaon Pathar, Jamadarbari.

South- Sapona, Tenga Gaon, Meda Gaon, Nilchaka Bausi

East- Balabhita Village, Chengulia, Nunmati, Nichuka.

West- Bhalukadoba, Patikata no.2, Palangbari

# 1 Chapter : INTRODUCTION TO MASTER PLAN AREA

## 1.1 LOCATION AND REGIONAL SETTING

Location and Area : Sorbhog Master Plan Area.

District: : Barpeta

Sub-Division : Barpeta

Draft Master Plan area: 39.53 Sq. km / 3953.00 hectares

Municipal area : 3.65 Sq. km

## 1.2 A. Population: 32,381 (as per Census 2011)

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### C. REVENUE AREAS INCLUDED IN THE MASTER PLAN AREA FOR SORBHOG ARE:

<u>Mouza</u>	<u>Villages(21)</u>
Damka Chaka Boushi	Sahpur, Sorbhog Gaon, Puthimari, Duramari, Ahom Pathar, Santra Daha, Bairapur, Kalitapara, Nuntola, Rampur, Gella Para, Uttar Ganakgari, Bandarkhowa, Batabari, Amguri, Santabari, Ketekibari, Dakshin Ganakgari, Baregaon, Niz Damaka, Sorbhog Municipal Area.

### 1.3.1 SORBHOG MASTER PLAN AREA

#### VILLAGES AND TOWN INCLUDED IN THE SORBHOG MASTER PLAN AREA

The Sorbhog Master Plan includes total of 20 villages along with the area of Sorbhog Town. The villages selected to be part of the Master Plan are adjacent to the town of Sorbhog having homogenous characteristics. List of the towns and villages included in the Master Plan is as under-

Table- Name Of The Villages and Towns along with population included in Sorbhog Master Plan as per census 2011.

Name of the Village/Town	Population
1. Sarbhog (TC)	8112
2. Shapur (Sahpur)	2259
3. Sarbhog Gaon	876
4. Puthimari	1222
5. Duramari	1431
6. Ahom Pathar	1340
7. Santaradaha	604
8. Bairapur	803
9. Kalita Para	991
10. Nontola	906
11. Rampur	887
12. Gella Para	1188
13. Uttar Ganakgari	1881
14. Niz Damaka	1546
15. Bandar Khowa	2656
16. Bata Bari	79
17. Amuguri	222



<b>18. Chanta Bari</b>	640
<b>19. Keteki Bari</b>	1120
<b>20. Dakshin Gonakgari</b>	1704
<b>21. Bare Gaon</b>	1914

### 1.3.2: Brief History of The Town And Surrounding

Sorbhog, is the hub for the greater "Barnagar" area. It is a revenue town amongst the six towns of Barpeta district. Along with its neighbouring villages Sorbhog has a glorious past. In different times of history, Barnagar was known by different names such as Vijoynagar, Ghilabijohnagar, Ghilanagar Vijoypur and Viratnagar. On the western part of ancient Kamrup, there was an important state named Barnagar founded by king Narnarayan. In the sixteenth century Koch King Narnarayan temporarily established his capital at Barnagar in order to get rid of the wrath of Sanidev (Patgiri C). After the death of Narnarayan, the Koch Kingdom was divided into two parts namely Koch Bihar and Koch Hajo. Koch Bihar was ruled by Lakshmi Narayan, the son of Narnarayan. On the other hand, Hajo came under the authority of Chilarai's son Raghudev. Raghudev established his capital at Barnagar in 1581. However after bifurcation, the Koch Kingdom lost its significance. Raghudev was succeeded by Parikhit Narayan. In 1616 with the down fall of Paikhit narayan, prominence of Barnagar came to be disappeared.

From ancient period, the area has witnessed the rule of the Varmanas (380 to 654), Salasthamas (655 to 985), the Palas (985 to 1260), the Kamatas (1260 to 1509), and the Koches from 1509. During the Kamata and Koch rule, major historical development took place and large number of local feudatory-chiefs, primarily land lords called 'Bhuyans', ruled the region. Numbers of villages constituted a 'Chakla' placed under a Bhuyan was patronised by the Kamatas. These Bhuyans arrived from eastern part of India like Kanauj, Gauda and Bengal who in passage of time became general Axomiya cast and most of them accepted the Vaishnava faith under influence of Shrimanta Sankardev.

Historical sources reveal that from thirteen century Vaishnavite culture started to be flourished in the areas of Barnagar. Eventually, Mahapurush Sankardev used to live at Patboushi in 1546 AD. After the appearance of the great guru, a large number of Satras were set up in Barnagar. These Satras became the centre of art culture and religion. For quite some time Barnagar remained as the confluence of learned people. Baikuntha Nath Bhattacharya (Bhattadev), Ramswaraswati, Pitambar Vidyabagish, Purusottam Vidyabagish and many others made Barnagar a famous site of learning.

Sorbhog is known in the entire region for century old temple of Lord Krishna is called Gorokhiya Gohai Than, where thousands of pilgrims visit to have glimpses of the holy place.

Sorbhog Town Committee was formed in 1962. Formerly the town area was administrated under the authority of a local board. The Sorbhog town comprised of a number of villages like Medhipara, Salepara, Bengapara, Gellapara, Bayanpara, Sorbhog village and a portion of Rampur and Nizdamaka. Thus the small Sorbhog village appears to be identified as Sorbhog Town. The name Sorbhog suggests

abundance of milk and milk products in this area. Most of the inhabitants were accustomed to farming cows and buffaloes. It is assumed that this characteristics of milk consumption (Sor+bhog) influenced in shaping the very name Sorbhog.

Sorbhog is situated in the centre of Barnagar revenue circle. The area is encircled in the north by Bhutan hills, in the south by Kalgachia circle, in the east by Sarupeta circle and the west by Bongaigaon district. The Beki river is flowing through the heart of Sorbhog Master plan Area.

#### .1.3.3: Location and Linkages

##### **Regional Linkages**

Sorbhog Town being the commercial town of the District is trying to develop significant road and rail connectivity with the rest of the places.

##### **1.3.3.1: Roads**

The Town lies beside National Highway 31 .The town is at a distance of 142 km by road from Guwahati , the largest city in the region. National Highway 31 connects Sorbhog Town with rest of the country in the west. Towards the north it has road connectivity with the neighboring country of Bhutan too. The inner arterial and connector roads have wide connectivity with the rest of the neighboring villages and towns. The town is at a distance of 22 km. from the district head quarter of Barpeta District. The town is one of the most important place of western Assam and is ideal place for trade and commerce.

##### **1.3.3.2: Railways**

Sorbhog railway station is at a distance of 121 km (railway distance) , from Guwahati, the capital of Assam, covered in three hours. It's a good source of transportation of goods to this commercial hub. Direct train service connects the town to Bangalore, Chennai ( in the south India ), New Delhi, Kanpur , Lucknow ( in the central India ), Kolkata, Puri in the west, Dibrugarh in east of India.

##### **1.3.3.3: Airways**

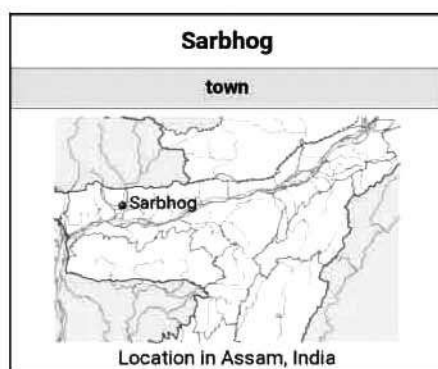
Guwahati airport is the largest and the busiest airport nearing this place, which connects Guwahati to major cities in the country as well as to other major cities and towns in Assam. It's approximately 142 kms. from Sorbhog Town.

##### **1.3.3.4: Waterways**

The district was once well connected through river Brahmaputra. This route has been virtually closed and only fishermen use their boats for a livelihood though a few ferry services are still available to connect to this district towards the south.

#### **1.3.4: Geographical location**

Sorbhog Town is located at 90°52' East longitude and 26°30' North latitude.



It is located towards the north-western side of Kamrup district surrounded by Nalbari district in the east, Bongaigaon district on the west, Manash National park on north. It is 165 feet (50 meters) above the mean sea level.

### 1.3.5: Physical characteristics

Various physical characteristics of Sorbhog town are described below in a tabular form

Parameter	Description
Topography	Mostly alluvial plains
Average Temperature	37°C (maximum), 8°C ( minimum)
Extreme Months	July (Summer) and December ( Winter)
Humidity	80% ( Maximum)
Rainfall	2742 MM (Average)
Monsoon Period	May to September

## 1.4: NEED FOR THE MASTER PLAN

Sorbhog Town, one of the growing commercial centre of Barpeta District, is the most important town in this District as well as the state in terms of its transport connectivity and strategic location. Responding to multifarious developments, internal and external, the town must respond to its existing problems, the new emerging socio-economic forces with a vision of its own. Sorbhog, most importantly being a commercial centre of lower Assam should stand out among other business hubs and the town should perform its functions well an example to the other town of the State. Thus, the vision for Sorbhog Town for its development through 2041 is:

### Requirement of Sorbhog Master Plan-

- To present a comprehensive, long - range development plan and to enable to proceed directly into preparation of Schematic Design documents for each phase of development.

- b) One of The Most Admired Commercial Hub of the state.
- c) With A Unique Image of its Own.
- d) Create livelihood to all the sectors.
- e) Improvement of the existing infrastructure to facilitate future planning needs.
- f) Slum free town.

Thus, the vision for Sorbhog Town for its development through 2041, being a cherished dream.

To achieve this vision it is necessary to break it into a number of goals and subsequently to objectives.

1. The process can be further taken up as sector wise development plans and review of local area plans in subsequent 5 years term.
2. By proper policy planning and strict adherence of the land use zoning and building byelaws.
3. By submerging the planning with combing funds from the state as well as the centrally sponsored schemes.

## **1.5: FUNCTIONS AND NEEDS OF THE PLANNING AREA**

The Master plan for Sorbhog has been prepared considering the major functions of the planning area and future needs of the population of the area. Moreover the influence of whole Barpeta District over Sorbhog planning area as its service area for spill over activities. Above all, the livelihood pattern of the indigenous aborigines are also given due consideration in formulation of the proposed land use plan to accommodate the future activities, which will meet the functional need of the area, and satisfy the aesthetic and emotional aspiration of the citizens.

### **1.5.1: Major functions of the planning area:**

Based on the studies made over the existing situation and future needs, the Sorbhog planning area can be inferred to have the following major functions.-

- a) To function as a trade and commerce centre.
- b) To function and grow as a growth centre for small scale and household industries.
- c) To function as growth centres for various services.
- d) To function as a recreational area suited for outings from the congestion polluted environment.
- e) To function as transportation node.

### **1.5.2: Plan period:**

The growth of human settlement being a continuous process and for the purpose of preparation of this master plan, a twenty year time span up to 2041 AD is adopted to reflect the future requirements and needs of the area in an effective manner. However, it is a fact that the proposals cannot be entirely based on the requirements of the plan period alone, as it is required to function with same or more efficiently even after the plan period with modification, alternations to the existing plan as per the functional requirement of that time.

## 2. CHAPTER : DEMOGRAPHY

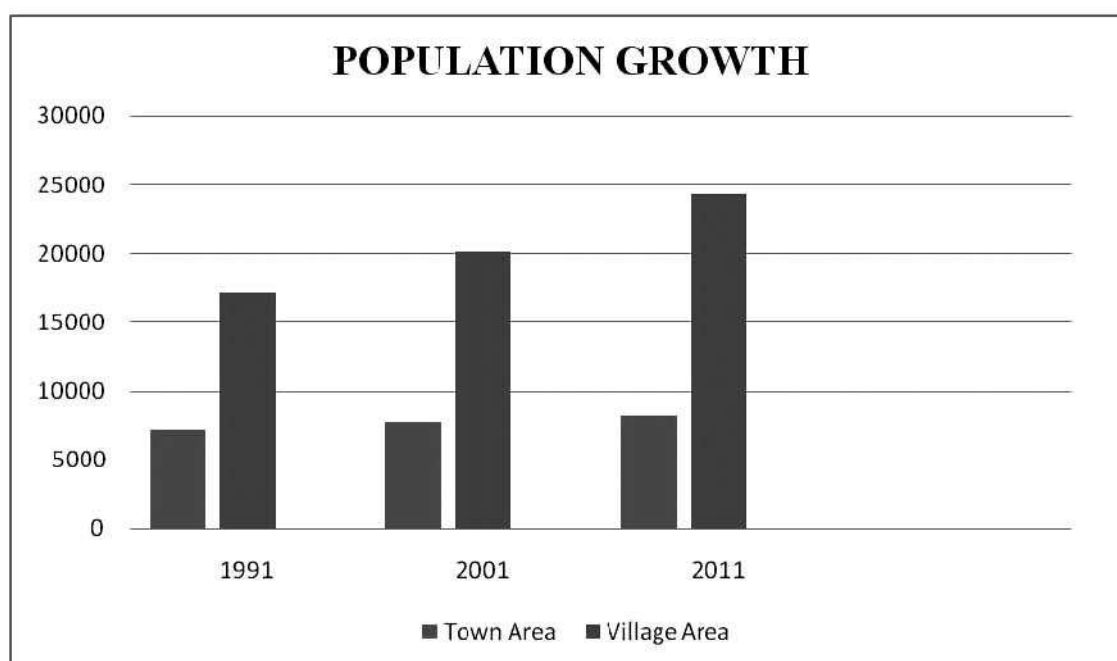
### 2.1.1: Population Growth:

The population of Sorbhog Master Plan area has been categorized into urban, rural and total master plan area population for study. The decadal growth of population of Master Plan Area from 1991 to 2011 is shown in the following table. The population of the Master Plan Area has increased from 24244 in 1991 to 32381 in 2011. However, Average Annual growth rate shows an inclining trend since last 2 decades.

Table: Population Growth

Year	Town Area	Village Area	Total MP Area	AAGR	AAGR	AAGR
1991	7148	17096	24244	Town Area	Village Area	Total MP Area
2001	7687	20097	27784	0.75	1.75	1.46
2011	8112	24269	32381	0.55	2.07	1.65

Source: Census of India.

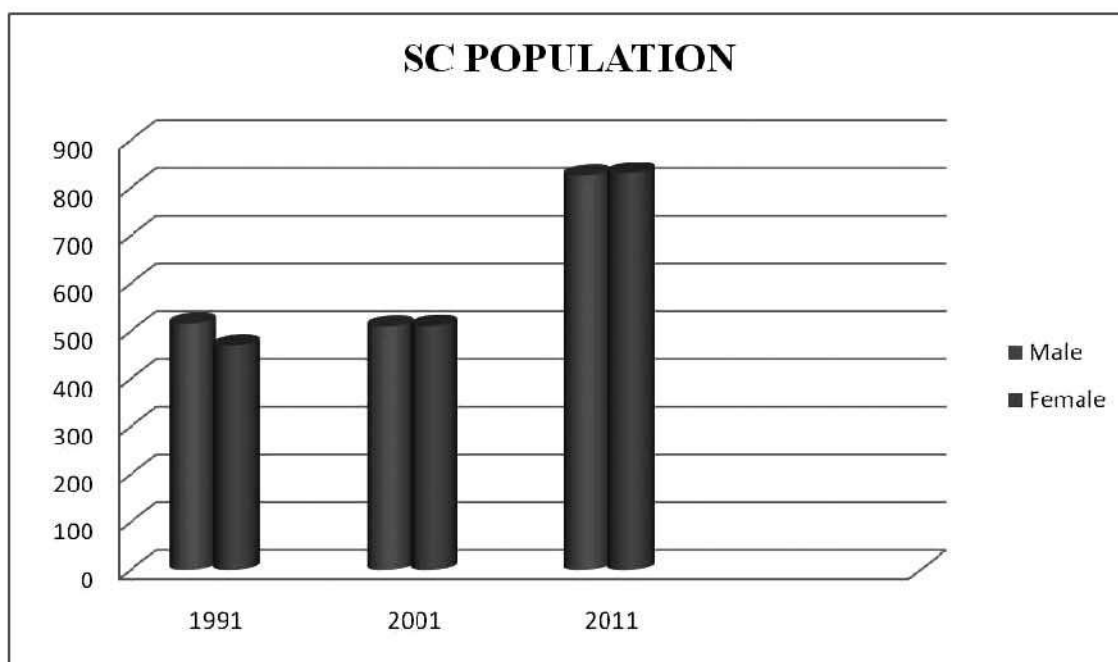


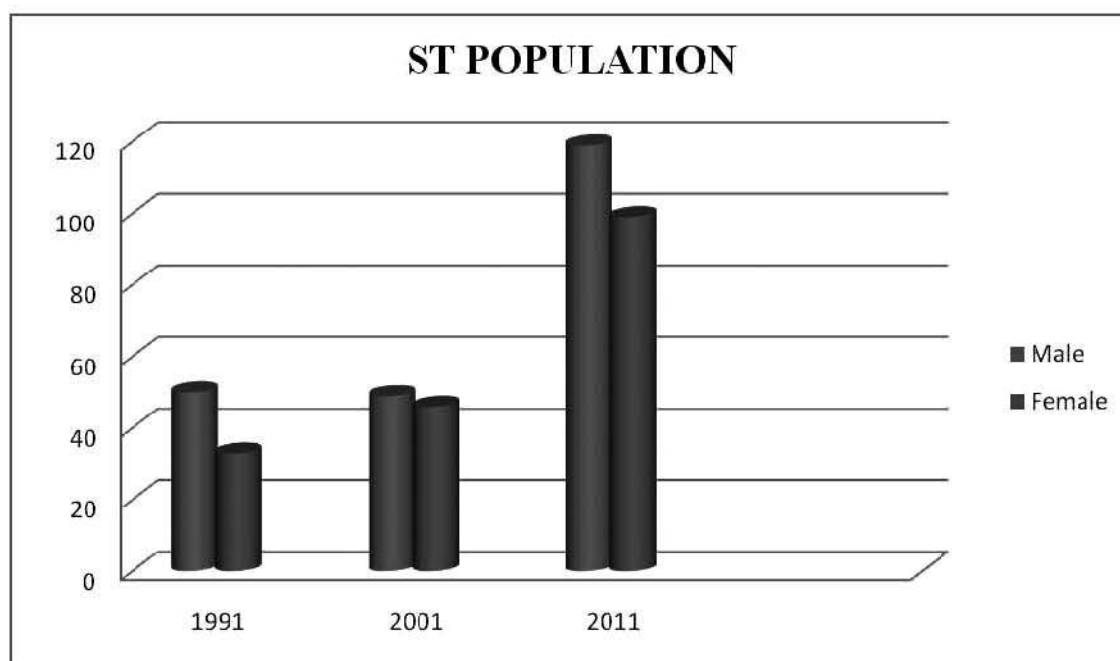
As per the year 2001 census report, the population figure of Sorbhog Master Plan Area was 27784. The percentage of decadal growth for 1991-2001 was 1.46% and for 2001-2011 is 1.65%. The population of Sorbhog Town As of 2011 census as 32381.

### 2.1.2: SC & ST Population in Sorbhog Master Plan Area

YEAR	POPULATION			SC POPULATION			ST POPULATION		
	M	F	T	M	F	T	M	F	T
1991	12470	11774	24244	516	471	987	50	33	83
2001	14178	13606	27784	510	511	1021	49	46	95
2011	16199	16182	32381	826	831	1657	119	99	218

Source: Census of India





### 2.1.3: Population O-6 Years In Sorbhog Master Plan Area.

YEAR	TOTAL POPULATION AGE GROUP (0-6)	MALE	FEMALE
1991	4276	2424	2156
2001	3811	1935	1876
2011	3668	1826	1842

Source: Census of India.



### 2.1.4: Population Density

The density of population of the Master plan area was 611 persons per sq. km. in the year 1991, which has been increased to 817 persons per sq. km. in the year 2011.

### 2.1.5: Age-Sex Composition

Study of Age-Sex composition of population shows that the proportion of population in the working age group 15-60 and old age group 60+ is increasing. This is indicative of the increase in the participation rate and need of more and better health infrastructure and recreational activities.

### 2.1.6: SEX RATIO

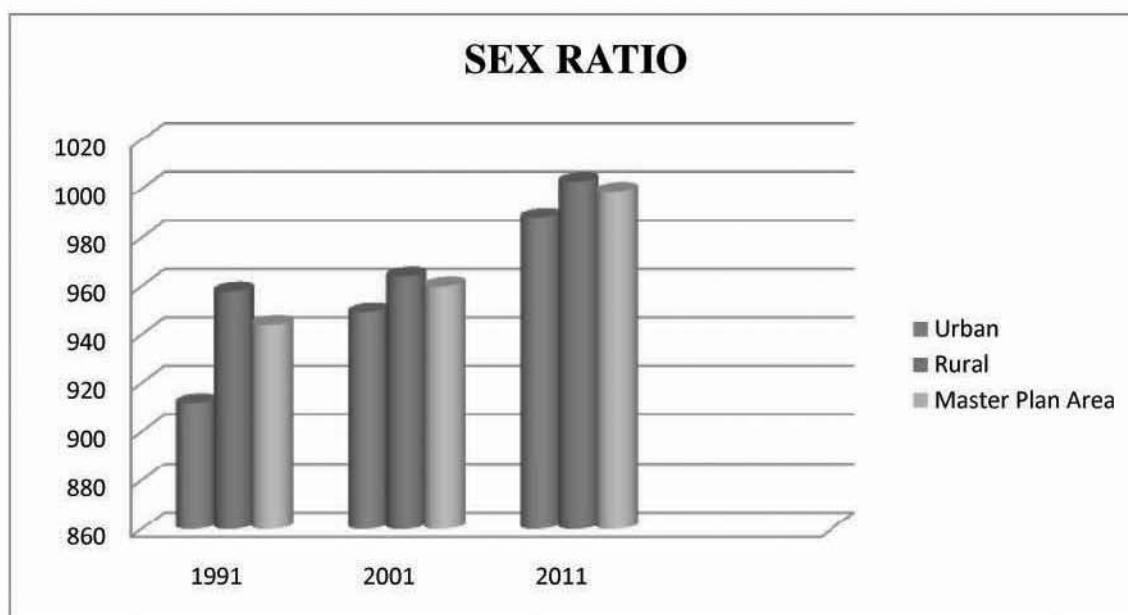
Defined as the number of female per 1,000 males in a population, the Sorbhog Master Plan Area has an average sex ratio of 999 as per census 2011. This is in general higher than the state (958) and national (901).

Table: Sex Ratio of Sorbhog Master Plan

	Urban			Rural			Master Plan Area			% of Growth
Year	Male	Female	Sex Ratio	Male	Female	Sex Ratio	Male	Female	Sex Ratio	AMP
1991	3738	3410	912	8732	8364	958	12470	11774	944	
2001	3945	3742	949	10233	9864	964	14178	13606	960	1.7
2011	4080	4032	988	12119	12150	1003	16199	16182	999	4.06

(Graph with ration over 3 decades.. 1991, 2001, 2011)

Source: Census of India.



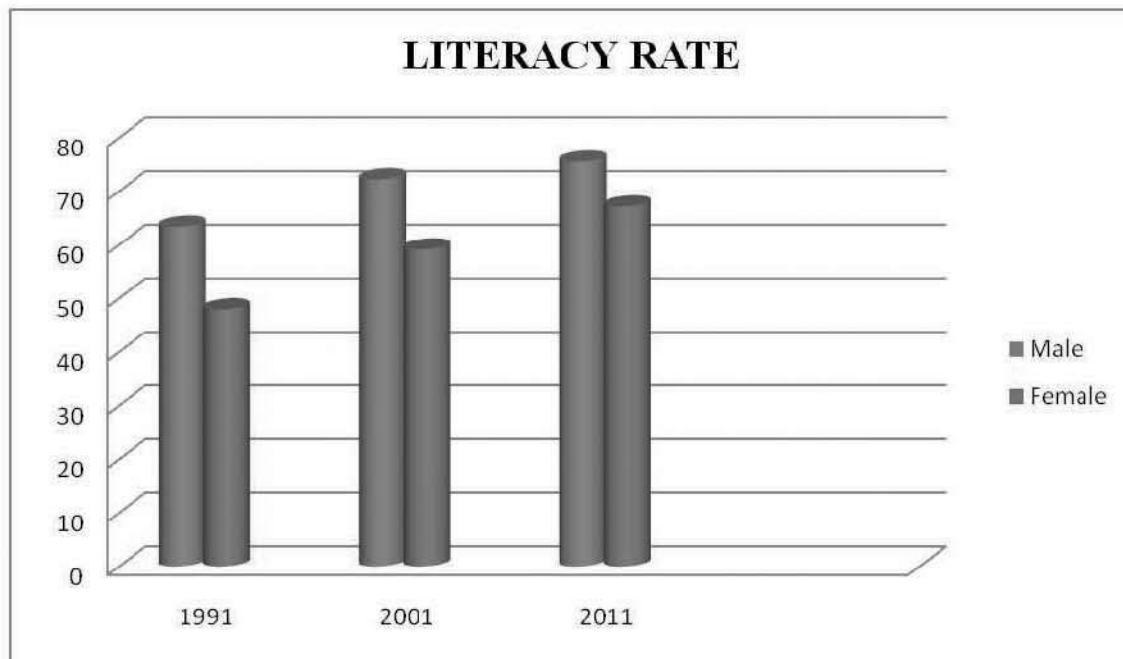
### 2.1.7: Literacy

As per the year 2011 census report, Male literacy rate of the Sorbhog MP Area is 75.48% and the female literacy rate is 67.09%. The total literacy rate of the Sorbhog MP Area is 71.29% compared to national urban figure of 59.5%.

Table: Literacy Rate of Sorbhog Master Plan.

YEAR	POPULATION			LITERATES			% OF LITERACY		
	M	F	T	M	F	T	M	F	T
1991	12470	11774	24244	7901	5633	13534	63.36	47.9	55.9
2001	14178	13606	27784	10238	8045	18283	72.21	59.12	65.9
2011	16199	16182	32381	12228	10857	23085	75.48	67.09	71.29

Source: Census of India.



### 2.1.8: WORKING AND NON-WORKING POPULATION, SORBHOOG MP AREA (2011 CENSUS)

AREA	TOTAL POPULATION			WORKING POPULATION			NON-WORKING POPULATION			WORKING IN %
	T	M	F	T	M	F	T	M	F	
Sorbhog (T.C)	8112	4080	4032	2882	2287	595	5230	1793	3437	
Sorbhog Gaon	876	445	431	335	241	94	541	204	337	
Shapur	2259	1198	1061	816	618	198	1443	580	863	
Puthimari	1222	614	608	543	327	216	679	287	392	
Duramari	1431	698	733	613	383	230	818	315	503	
Ahom Pathar	1340	662	678	560	381	179	780	281	499	
Santaradaha	604	283	321	369	185	184	235	98	137	
Bairapur	803	409	394	395	242	153	408	167	241	

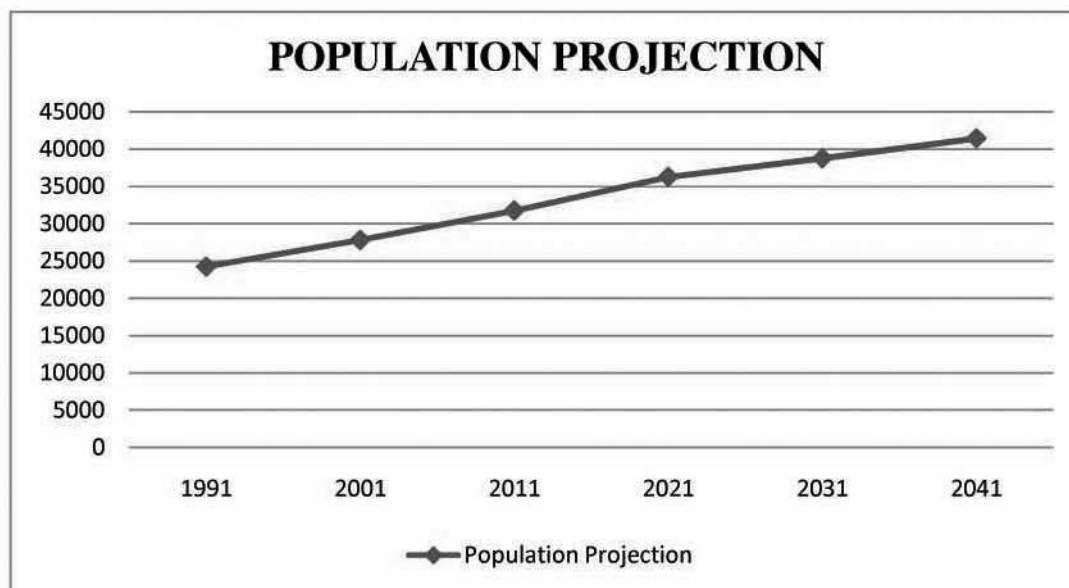
<b>Kalitapara</b>	991	471	520	260	202	58	731	269	462	
<b>Nontala</b>	906	452	454	296	213	83	610	239	371	
<b>Rampur</b>	887	438	449	309	248	61	578	190	388	
<b>Gellapara</b>	1188	610	578	263	243	20	925	367	558	
<b>Uttar Ganakgari</b>	1881	910	971	550	461	89	1331	449	882	
<b>Niz Damaka</b>	1546	775	771	512	402	110	1034	373	661	
<b>Bandar Khowa</b>	2656	1341	1315	1089	695	394	1567	646	921	
<b>Batabari</b>	79	37	42	17	17	0	62	20	42	
<b>Amuguri</b>	222	117	105	67	52	15	155	65	90	
<b>Chanta Bari</b>	640	382	258	71	61	10	569	321	248	
<b>Keteki Bari</b>	1120	529	591	576	283	293	544	246	298	
<b>Dakhin Ganakgari</b>	1704	821	883	703	444	259	1001	377	624	
<b>Bare Gaon</b>	1914	927	987	782	506	276	1132	421	711	

Source: Census of India.

### 2.1.9: Population Projection

Year	Projected Population in Sorbhog Master Plan Area
1991	24244
2001	27784
2011	32381
2021	36257
2031	38752
2041	41419

Source: Based on Exponential method of Population Projection.



On the basis of the statistics found, it can be concluded that there is a scattered development from the main town area. The density has inched and people prefer to settle in the surrounding villages which is less developed but less from the chaos.

Based on the past population growth trends— low, medium and high – population estimates for Sorbhog Master Planning Area for the period from 2022 to 2041 have been worked out. It is estimated that the population of Sorbhog MPA may vary from 24244 in 1991 to 41419 in 2041.

### **3. Chapter : Economic Base And Employment**

The economic growth of Sorbhog has been driven by both Formal and Informal sector of economy. Mainly it can be characterized as a developing market economy.

Economic base of any place refers to companies and any other employers that generate lots of jobs in a local or regional areas. These are usually includes government and civil service department, companies , industries , trade and agriculture etc. More than 86% of the Sorbhog Master Plan Area is rural and 70% of this depends on agriculture.

#### **3.1 FORMAL SECTOR OF ECONOMY**

People working in civil service, public sector units, government service, defence, multinational companies , school , colleges, research institutes, management organizations, bank etc. all belongs to Formal Sector. This sector encompasses all jobs with normal hours and regular wages and are recognized as income sources on which income taxes must be paid.

##### **3.1.1: OFFICES**

1. Sorbhog Post Office
2. Municipalities Office
3. Sorbhog Town Committee.
4. Barnagar Revenue circle office.
5. PWD Office, Sorbhog
6. Sorbhog Electricity Office.
7. Office of the Executive Engineer, Barpeta Division (Irrigation), Sorbhog
8. Sorbhog Municipal Office
9. Circle/SDC office, Kalitapara
10. Nizdamaka Post Office
11. ASEB Sorbhog
12. Sorbhog Police Station
13. Bairapur Nuntola Post Office.
14. Fire Service, Sorbhog.

**3.1.2: EDUCATIONAL INSTITUTE**

Sector	Type of Institutions	No. of Institutions		No. of Students/Intake	
		Govt.	Private	Govt.	Private
Elementary Education ( Sorbhog Town Area)	1. Primary	20	Nil	995	Nil
	2. Upper Primary ( 6-14 years) Classi-viii	5	Nil	815	Nil
	3. Others	10	9	2720	4276

Sector	Type of Institutions	No. of Institutions		No. of students/Intake	
		Provincialised	Private	Provincialise	Private
	<b>High School</b>				
	1. Sorbhog Rly colony high school, Sorbhog			75	
	2. Uttar Barnagar high school, Puthimari			120	
	3. Bishnujyoti high school, Ahompathar.			85	
	4. Barnagar high school, Nuntala	5		75	
	5. D.K. high school, Sowpur			165	
	.				



Secondary	<b>Private Institution</b> 1. Barnagar Vidyamandir, Sorbhog 2. Sunflower high school, Sorbhog 3. Sankardev sishu Niketan, Sorbhog 4. Gyandip Jatiya Vidyalaya, Sowpur 5. Azanpeer Musam Model Academy HSS.	5		620	
	<b>Higher Secondary School</b> 1. Barnagar J.R.P & M.P school, Sorbhog Uttar Ganakgari. 2. Barnagar Girls H.S school, Uttar Ganakgari	2		55	160
Higher Education	<b>Degree College</b> 1. Barnagar College, Sorbhog	1		3100	

Source- Inspector of Schools, BDC, Barpeta.

### 3.1.3: INDUSTRIES

Industries are momentum of economic growth. They provide employment to growing population and also bring in other economic activities in their forward and backward linkages.

There are no large scale industries as such in this town. Few of the industries are operated mostly from the houses within the town area. Those can be continued as far as the environment is not at risk. They are small and medium scale industries only.

As per record of DICC Barpeta, following are the category wise registered ongoing industries.

Sl. No.	Name of the villages/Town	Name of the Industry	No. of Unit
1	Shapur	Rice Mill	2
2	Sorbhog Gaon	Rice Mill Steel Fabrication Wooden Furniture	2 3 3
3	Puthimari		Nil
4	Duramari		Nil
5	Ahom Pathar	Tailoring Unit	2
6	Samtra Daha		Nil
7	Bairapur		Nil
8	Kalitapara		Nil
9	Nuntola		Nil
10	Rampur		Nil
11	Gellapara	Block Brick Industry	1
12	Uttar Ganakgari	Steel Fabrication Wooden Furniture Tailoring	2 2 2
13	Bandarkhowa		Nil
14	Batabari		Nil
15	Amguri		Nil
16	Santabari		Nil
17	Ketekibari		Nil
18	Dakshin Ganakgari	Rice Mill Tailoring Unit	1 2
19	Baregaon		Nil
20	Niz Damaka		Nil
21	Sorbhog Town	Wooden Furniture Steel Fabrication Rice Mill Milk processing unit Tailoring unit Paper Plate MFG Water Packing Industry X-Ray	6 6 5 6 6 1 1 2

Source: D.I.C.C., Barpeta.

Other industrial units of the planning areas are tailoring, readymade garments, embroidery, handloom, spice grinding, repairing of 4 wheelers and 2 wheelers, DTP works, cement concrete products.

Major industrial activities of diversified nature are developed along the market centre, featuring in Shapur, Uttar Ganakgari, Gellapara and Dakshin Ganakgari villages. The principal types of industries of this area are Block Brick Industry and manufacturing industries. Different types of industries of the area ranges from medium scale to small scale industries and from Red category industries to green category industries.

There is no earmarked industrial growth centre and commercial estate at present.

### 3.1.4: Fisheries

The following villages within the master plan area viz. Sahpur, Sorbhog Gaon, Puthimari, Duramari, Santradaha, Bairapur, Kalitapara, Dakshin Ganakgari etc. have immense potential for fishery development. The existing fishery of the potential villages are as follows-

Statement showing the details information regarding Fishery, Pond & Tank, Fish seed Hatchery, Nursery tank etc under Chakchaka Dev. Block for Sorbhog Master Plan Area.

Sl. No.	Name of Villages	Ponds & Tanks		Nursery Pond		Hatchery		Productivity(kg/Ha)	Total Production
		No	Area	No	Area	No	Area		
1	Sahpur	6	1	Nil	Nil	Nil	Nil	3200	3200
2	Sorbhog Gaon	3	0.05	Nil	Nil	Nil	Nil	3200	1600
3	Puthimari	4	2.5	Nil	Nil	Nil	Nil	3200	8000
4	Duramari	8	2.3	Nil	Nil	Nil	Nil	3200	7360
5	Ahom Pathar	4	0.6	Nil	Nil	Nil	Nil	3200	1600
6	Samtra Daha	8	1	Nil	Nil	Nil	Nil	3200	3200
7	Bairapur	7	1.5	Nil	Nil	Nil	Nil	3200	4500
8	Kalitapara	6	0.8	Nil	Nil	Nil	Nil	3200	2650
9	Nuntola	5	0.8	Nil	Nil	Nil	Nil	3200	2650
10	Rampur	3	0.5	Nil	Nil	Nil	Nil	3200	1600
11	Gellapara	5	1.5	Nil	Nil	Nil	Nil	3200	2650
12	Uttar Ganakgari	2	0.25	Nil	Nil	Nil	Nil	3200	2650
13	Bandar Khowa	5	4.5	Nil	Nil	Nil	Nil	3200	14000
14	Batabari	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
15	Amguri	1	0.2	Nil	Nil	Nil	Nil	3200	640
16	Santabari	2	0.35	Nil	Nil	Nil	Nil	3200	450
17	Ketekibari	3	0.45	Nil	Nil	Nil	Nil	3200	1400

18	Dakshin Ganakgari	8	1.5	Nil	Nil	Nil	Nil	3200	4500
19	Baregaon	5	1.1	Nil	Nil	Nil	Nil	3200	3300
20	Niz Damaka	3	3	Nil	Nil	Nil	Nil	3200	9000
21	Sorbhog MB Area	2	0.3	Nil	Nil	Nil	Nil	3200	Nil
	Total	82	24.2					64,000	74,950

Source: District Fishery Dev. Office.

There are number of tanks for productions of large sized fish seeds (fingerling) fair stocking the pisciculture tanks. since traditional type of pisciculture is followed in most of the villages. The potential production may be increased to 6400 kg/ha/year if semi – intensive camp culture is adopted.

As per District Fishery Development Officer, Barpeta, to augment fish production and to increase productivity, rearing tank (3 hectare) to produce fingerling and new ponds (10 hectare) of carp culture are to be constructed. Existing ponds& Tank (79.46 hectare) are to be developed and extended. Integrated pig cum fish centre should be encouraged as the areas are suitable for this purpose.

### 3.1.5: Farming:

A dwindling population of swarm buffalo has hit the dairy industry in Sorbhog areas, famous for curd and milk products. The dairy sector is primarily dependent on the local variety of cows and buffalos.

Live stock and poultry occupies important places like the economic life of Sorbhog master plan area. Cattle, buffalo, goat, piggery etc. are the most common live stocks of the area.

### 3.1.6: Wholesale Trade

There is not a notable wholesale market associations dealing in almost all types of trade and business activity in Sorbhog Master Plan Area. Mainly Sorbhog Master Plan areas are really very famous for its dairy products and production of vegetables.

Their locations and the major related issues are as given in the following table:

Sl. No.	Name & type	Location	Issues/ Remarks
1	Wholesale markets of food-grains and perishable items	Wholesale and retail market at ward no 1&2	Lack of basic services  No arrangements for loading-unloading platforms and parking of vacant trucks  Intermixing of goods and other traffic.  Absence of proper solid waste management
2	Hardware and Building materials (Wholesale and retail)	Ward no. 6,3,4	1 . Lack of basic amenities.  2. No proper arrangement solid waste management  3. Congestion and spill over of activities
4	Vegitable market	Main market at ward no. 2	1. Lack of basic amenities.  2. No proper arrangement solid waste management  3. Congestion and spill over of activities

### 3.1.6.1: Haulage Complex cum Wholesale Market

The Master Plan proposes to develop a new Integrated Haulage Complex including Wholesale Markets near N.H. 31 in the southern side of Sorbhog MPA . This location provides appropriate linkages for the incoming goods, outgoing goods and distribution of wholesale goods in the city. In the Haulage Complex, the Wholesale business could be operated more efficiently in a better environment. Basic functions of the Haulage Complex cum wholesale market are

- To provide facilities for carrier movement;
- To provide warehousing and storage facilities and interlink these with the wholesale markets;

- To provide servicing, lodging and boarding, idle parking, restaurant, and other related functions in the complex.

### 3.1.7: Existing Wholesale Market

The existing wholesale cum retail market of Sorbhog in ward No. 1 & 2, plays an very important role in distribution of supply and demand. Till such time the new wholesale market at New Place is developed, the wholesale market activity is to continue from the existing areas. After the development of the new wholesale market, the existing wholesale cum retail market area would be used for retail activity, thus not allowing the movement of any heavy and medium commercial vehicles in the central town area.

### 3.1.8: Retail Trade

Retail shopping areas are important as these create an image of the city. In Sorbhog MPA retail shops are spread all over the town; however, the core busy area is the major town level retail trade centre.

To accommodate the required shopping, commercial offices, and other activities like cinema, hotel and related facilities, the following three-tier system of commercial development is proposed.

Community level - Whole of the town including the four New villages

Neighbourhood level

Cluster level

Tiers I, II and III—Community Shopping Center, Neighbourhood Shopping Centre's and Housing Area Cluster Shopping Centres.

The Community/commercial Centre would be a modern commercial centre with multi-storey commercial buildings and shall have major retail shopping areas, multi-storey commercial offices, banks, hotels, restaurants, and cine complexes. The Commercial Centre along with the City Facility Centre and Recreational Centre shall together form the new City-Centre.

Table: Three-Tier Hierarchy of Commercial Activities

Community Commercial Centre	Neighbourhood Commercial Centre	Cluster Centre
Tier I	Tier II	Tier III
<b>Population Served</b>		
About 1 lakh	About 15 thousand	About 5 thousand
<b>Area</b>		
5.4 hectare	0.46 hectare	0.11 ha
<b>Land Requirement Per Thousand Persons</b>		
540 Sqm.	306 Sqm.	220 Sqm.

The biweekly market, is proposed to function from Facility Centre III after its development. Such other weekly markets could operate from the parking areas of the Commercial Centres on the weekly off-days.

### 3.2. INFORMAL SECTOR

An Informal economy is the part of any economy that is neither taxed nor monitored by any form of Government. Although the informal sector makes up a significant portion of the economics in developing countries that provides employment , livelihoods and income for millions of workers and business owners. This relates to its employment potential as well as its role in inclusive growth and poverty reduction .

The town has a biweekly market in the core area at ward no.2. The market is held twice in a week on Wednesday and Saturday. People from the surrounding places go to this market, the specific attention being local goods goods such as vegetables and dairy products (curd, cream etc.) at cheapest prices.



Existing fish, meat and vegetable market . Sorbhog





**Dairy market. Sorbhog.**

### 3.3: OCCUPATIONAL PATTERN

#### Village Area:

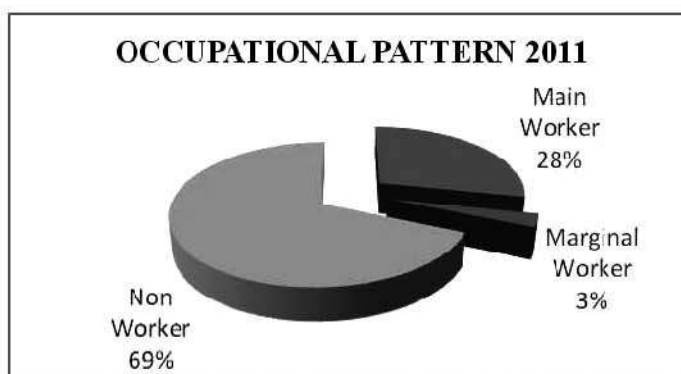
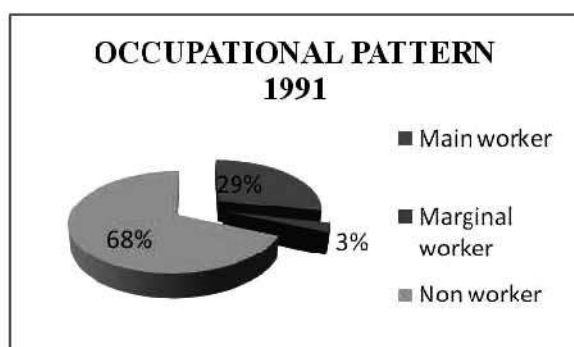
Workers type	1991	% age	2001	% age	2011	%	% of Growth
Main Worker	3513	32.75	5428	23.62	7844	26.76	44.50
Marginal Worker	591	5.51	832	3.62	879	2.99	5.64
Non Worker	6621	61.73	16717	72.75	20584	70.23	23.13
Total	10725	100.00	22977	100.0	29307	100.00	

**UrbanArea:**

Workers type	1991	%age	2001	%age	2011	%age	% of Growth
Main Worker	3108	25.06	4803	28.70	5638	30.80	17.38
Marginal Worker	78	0.62	656	3.92	578	3.15	-11.89
Non Worker	9212	74.30	11271	67.36	12084	66.03	7.21
Total	12398	100.00	16730	100.00	18300	100.00	

**Master Plan Area:**

Workers type	1991	%age	2001	%age	2011	%age	% of Growth
Main Worker	6621	28.63	10231	25.76	13482	28.31	31.77
Marginal Worker	669	2.89	1488	3.74	1458	3.06	-2.01
Non Worker	15833	68.47	27988	70.48	32668	68.61	16.72
Total	23123	100.00	39707	100.00	47608	100.00	



Primary, Secondary and Tertiary sector denotes only cultivators/agricultural labourers, workers in household industries and other workers respectively in 2011 census.

## **4. Chapter : Housing and Shelter**

### **4.1 Housing Scenario**

A number of housing clusters have mushroomed in and around various city centres in haphazard and unplanned manner, without a proper layout and devoid of service lines and other essential facilities. These unauthorized developments are encroachments on land parcels belonging to Govt. bodies, public private institutes or areas meant to be green belts. Therefore massive concerted effort need to be made. The remedies would include ensuring that the Master plan as well as Zonal plan and local area plan being made, so that adequate provision is made for the homeless as well as slum dwellers. Should identifying city specific housing shortage and preparing city level Urban Housing & Habitat Action plan for time bound implementation.

To promote in-situ-slum up-gradation with partnership between the central Government, State Government, urban local bodies, self / private Builders etc.

It is a known fact that cities are facing a major problems regarding Housing Affordability among the Low Income Groups (LIG) and Economically Weaker section (EWS). High cost of housing rent and development has forced these group to squat inside the city urban areas who illegally claim uninhabited land, leading to slum development. The housing condition worsens in due course of time, due to un-affordability in maintenance and bad structure, migration to rural to urban areas and income expenditure imbalance.

### **4.2. Housing Supply Mechanism (Private sector participation)**

Privatization in the form of individuals and builders/developers should be encouraged to participate in the house building activity. The Development Authority could provide land with offsite physical and social infrastructure for the private entrepreneurs to invest in house building and onsite infrastructure development. Also developed individual residential plots could be provided to families where more than one dwelling unit could be constructed.

Housing has four distinct components for its development i.e., Land Assembly, infrastructure provision, building construction and post occupancy management. The following diagram gives an idea how these activities should be distributed amongst the Government, private and cooperatives making the Government a facilitator for housing development.

**4.2. Housing – Sorbhog MP 2041****Household Size**

As per 2013 survey conducted by Town and country planning, Barpeta, the average household size in Sorbhog MBA is 4.51.

**Housing Status:**

As per the census records 2011, there are 7,173 numbers of households in Sorbhog Master Plan Area.

Sl. No.	Name Of Town & Villages	No. Of Household
1	Sarbhog (TC)	1837
2.	Shapur (Sahpur)	412
3.	Sarbhog Gaon	179
4.	Puthimari	286
5.	Duramari	339
6.	Ahom Pathar	313
7.	Santaradaha	136
8	Bairapur	179
9	Kalita Para	252
10	Nontola	212
11	Rampur	219
12	Gella Para	277
13	Uttar Ganakgari	462
14	Niz Damaka	345
15	Bandar Khowa	467
16	Bata Bari	15
17	Amuguri	40
18	Chanta Bari	71

19	Keteki Bari	264
20	Dakshin Gonakgari	424
21	Bare Gaon	444
		Total 7,173

Source- Census 2011

### Housing Condition

According to census 2011 total number of households in the Sorbhog Master Plan Area is 7,173 against a population of 32,381 . Out of the total households urban and rural share of households is 1837 (against population 8,112 ) and 5,336 (against population of 24,269) respectively .The average household size of the Sorbhog Master Plan Area is 4.51 .

### 4.3. Slums

#### Existing slum areas

The Census of India 2001 has proposed to treat the following as 'Slum' areas: -

- All areas notified as 'Slum' by State/Local Government and UT Administration under any Act;
- All areas recognized as 'Slum' by State/Local Government and UT Administration which have not been formally notified as slum under any Act;
- A compact area of at least 300 populations or about 60-70 households of poorly built congested tenements, in unhygienic environment usually with inadequate infrastructure and lacking in proper sanitary and drinking water facilities.

According to the information there are 2 slum pockets in the Sorbhog MB (Ward no.2 and Ward No.5) area but it is not govt. notified.

#### National Slum Development Program

The components of this program include:

- a) Provision of physical amenities like water supply, storm water drains, community bath, widening and paving of existing lanes, sewers, community latrines, street lights, etc.
- b) Community Infrastructure: - Provision of Community centers to be used for pre-school education, non-formal education, adult education, recreational activities etc.

- c) Community Primary Health Care Centre Buildings to be provided
- d) Social Amenities like pre-school education, non-formal education, adult education, maternity, child health and Primary health care including immunization etc.
- e) Provision of Shelter: The Scheme to have a component of shelter up-gradation or construction of new houses as may be required.

### **Concept of City without Slums**

The Asian Development Bank through a study has worked out comprehensive guidelines for the program – 'City without Slums'. One of the major objectives of such a program is eradication or significant reduction of poverty of urban areas. Besides this, the other objectives are to ensure the following:

- a) Security of tenure;
- b) Minimum acceptable standards of municipal infrastructure and social services;
- c) Improved employment and income earning opportunities;
- d) Improved education, skills, training and health care;
- e) Better access to credit and other financial services for house/plot purchase, home improvement, enterprise development and livelihood activities, and
- f) Improved level of community organization capacity and empowerment.

The above objectives are inter-sectored and inter-departmental. To facilitate the above, the following is envisaged.

In case of existing slums, which are on Government lands that are not needed for development of any infrastructure or other urban activities, plans for upgrading of slums may be prepared and implemented.

Other slum pockets may be resettled at appropriate areas with due consideration of their distance from work places.

In all new housing schemes, at least 30% of total housing shall be one-roomed houses, part of which will go to the urban poor generally living in slums. These may be provided with cross-subsidy.

In any new land development scheme, 1% of the total land shall be reserved/developed for informal sector/vendor markets, which should be available to the urban poor families to conduct their livelihood earning activities. Such a land can be for informal sector units in food/vegetable/eating stalls and any other activities.

#### **4.4. Urban Renewal**

##### **Central Town Areas**

The Central Town has congested residential and commercial areas, which have high building density on land and high occupancy within buildings. These areas need immediate urban renewal. Refer to map.

##### **Guidelines for urban renewal**

The basic objective of the urban renewal plans are to upgrade the living and working environment by implementing schemes considering the existing physical and socio-economic conditions of the area. The schemes for the urban renewal are to be prepared after a comprehensive study, which should be in the form of a project report and a number of maps and plans. The following sets of plans are considered to be essential to project the existing conditions -

- a) Land Use
- b) Physical condition of structures
- c) Facilities and services
- d) Circulation pattern
- e) Open spaces, park and playgrounds
- f) Special feature (if any)
- g) The plan proposals for the urban renewal should indicate:
  - h) clearance areas and areas to be acquired (This would include subsequent plans for redevelopment of these pockets),
  - i) population distribution (in relation to holding capacity),
  - j) proposed land use,
  - k) proposed circulation system (indicating widening of streets, pedestrian streets, parking areas, access of emergency vehicles),
  - l) up gradation of facilities and services,
  - m) the existing Public and Semi-public uses and services like hospitals, dispensaries, colleges, schools, police stations, fire stations, post offices, local government offices, parking etc. to be retained in their present locations and also additional sites required to be indicated in the Urban Renewal Scheme; and
  - n) Recreational areas (indicating parks, play grounds and other recreational facilities).

Note: Reduced space norms may be adopted for community facilities/ social infrastructure. The concept of Accommodation Reservation i.e. allowing construction of community facilities without counting in FAR may also be applied

The Urban Renewal Plans would be prepared within the framework of the land use of the area as indicated the land use plan. In case of residential areas, the possibilities of mixed use (on ground floor) and street commercial may be explored. Special characteristics and features of the area would be kept in view. As far as possible, the urban renewal project should be self-financing.



## 5. CHAPTER : TRANSPORTATION

Transportation network of an area plays an important role in the area's economic and socio- cultural live. A well laid out road network can provide answer to many problems of human settlement. The growing demand of circulation space calls for scientific assessment of the problems of movement such as circulation pattern, road capacities, inaccessibility , lack of parking space etc, so that remedial measures could be evolved both for short as well as long terms measures.

Passenger and goods transport movement as well as their related concerns in the city transport sector play a critical role enabling productivity of the city system and promoting the welfare of the city and its region. The present transportation exercise is to evolve a transport system best suited to the unique dimensions of the town and to support the social and economic activities taking place there in.

The required traffic surveys and studies have been carried out to appreciate the traffic and travel characteristics, for identifying issues, constraints and potentials and to work out the most appropriate transport system for the town.

### 5.1. Network Of Roads and Traffic Characteristic



**A birds eye view at N.H.31 Approach , Sorbhog.**

### 5.2. Road Network:

The road network of the town is not planned and futuristic and needs maintenance. N.H. 31 passes through the Sorbhog Master Plan Area. The entrance road from N.H.31 to Sorbhog police station is fairly good . But the other roads of Municipal area are to be improved. The Roads in and around the market areas also need to be improved . Sorbhog MB Areas present network is serving the people with limited financial resources is facing hardship in maintaining the existing road network . The problem with the town is its rapidly growing commercial activity, which has seen a mounting pressure on its roads and habitable space and although the town has stood well against this a master plan needs to be prepared immediately for control and order in future. The vegetable market area, which witness hectic activity during season needs improvement.

- Roads around the market areas have become congested due to less offsets of structures from the street-line and heavier pedestrian and traffic movement. There is ample scope of improvement of roads in the residential areas with their co-operation.
- Presently though the Sorbhog M.P. Area's requirement is paving of roads on a priority basis.
- The most apparent problem associated with the transportation network is the lack of adequate drainage along with the roads. As a consequence of this during rainy season the road get undated by the flood creating traffic problem. So proper drainage system to be needed.

Records available with the Sorbhog Municipal Board are illustrated in the following table.

Road Type		Length (KM)
PWD Road	a. Black topped	3.50
	b. Paver Block	4.70
M.B. Road	a. Black topped	1.60
	b. Paver Block	2.80
	c. C.C Road	1.60

Only 22% of the road length had a carriageway of 7.0 m (2 lanes) and above; 80% of road length did not have footpaths; 75% of the road length did not have drainage facility; nearly 60% of the road length did not have street lighting facility.

Household survey conducted by T&CP, District Office, Barpeta in 2013 indicates the status of vehicle ownership of households in the Planning area.

**Status of Vehicular Ownership in Sorbhog Master Plan Area**

Sl. No.	Type of Vehicle	% of households
1	Cycle	45
2	Motor cycle / Scooter	32
3	Car	7
4	No vehicle	16

Model share of trips generated from the planning area is as follows:

Walk	Cycle	Two Wheelers	Light commercial Vehicles	Taxi	Bus	Others (inclusive of own vehicles)	Total
11 %	13 %	21%	24%	3%	21%	7%	100%

**City Road Network**

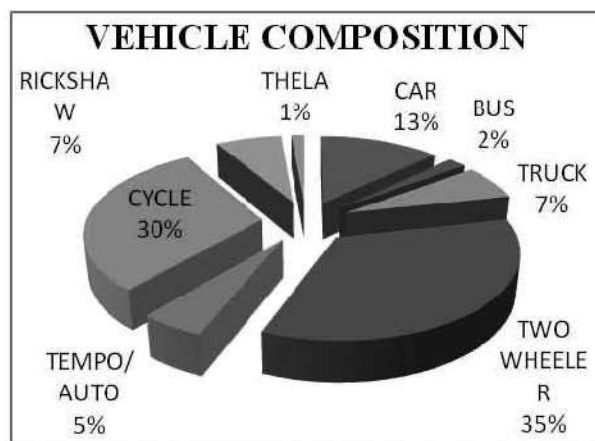
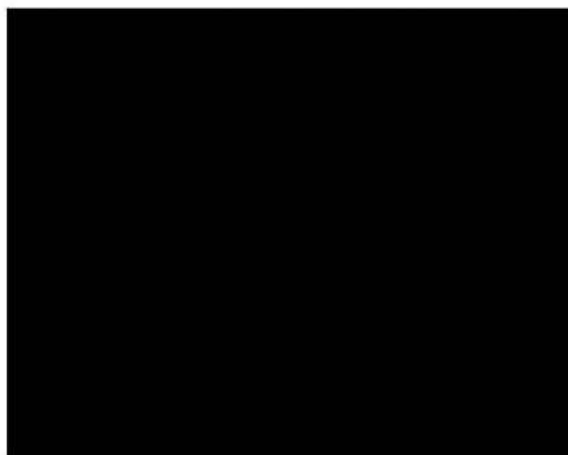
The Sorbhog MP-2041 recommends development of a hierarchy based arterial road network system comprising primary arterial, sub-arterial and collector roads. The main functional roads recommended are:

- a) City Radials/Axials
- b) Alternative Corridors
- c) All Purpose Roads in Central Area

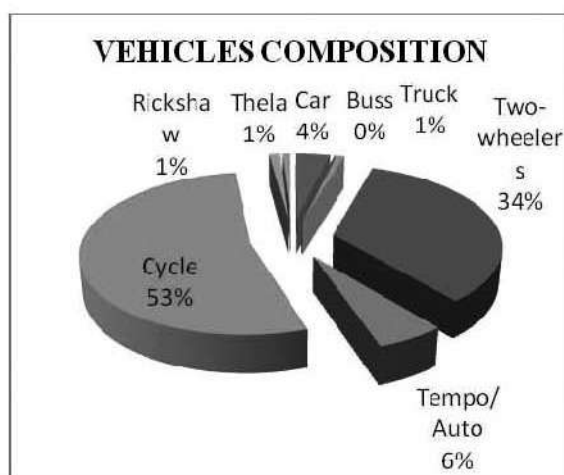
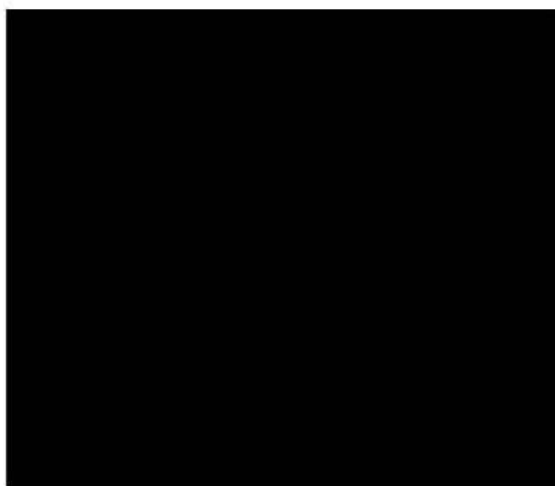
No specific road network has been designed as the condition of the present roads need to be taken care of and after a period of five years a fresh plan will be taken up for this alternative network to improve the transportation system.

Only a few stretches which need to be connected has been proposed primarily in this plan. Refer map - The existing roads.

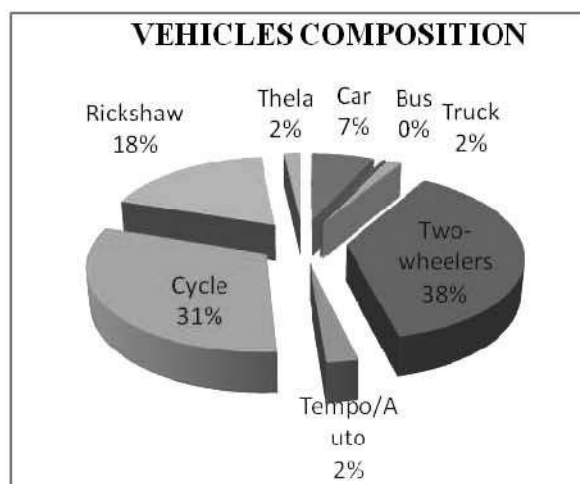
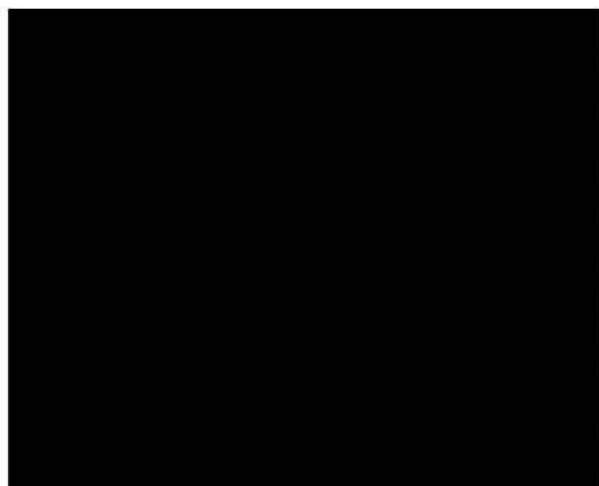
Name of Town: SORBHOG. Time: 8.00 AM to 4.00 PM						
Mode of Vehicle	Mode of time interval					
	8.00 AM to 10.00 AM	10.00 AM to 12.00 Noon	12.00 Noon to 2.00 PM	2.00PM to 4.00 PM	Grand Total	%
Car	865	903	989	811	3568	12.95
Bus	134	174	140	98	546	1.98
Truck	367	499	470	493	1829	6.64
Two Wheeler	2253	2609	2620	2026	9508	34.50
Tempo/Auto	339	325	402	333	1399	5.08
Cycle	2725	2282	2094	1257	8358	30.33
Rickshaw	459	639	497	361	1956	7.10
Thela	118	95	110	74	397	1.44
Total	7260	7526	7322	5453	27561	100.00



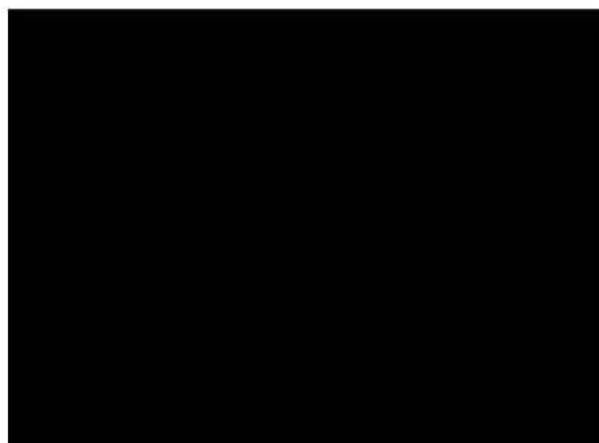
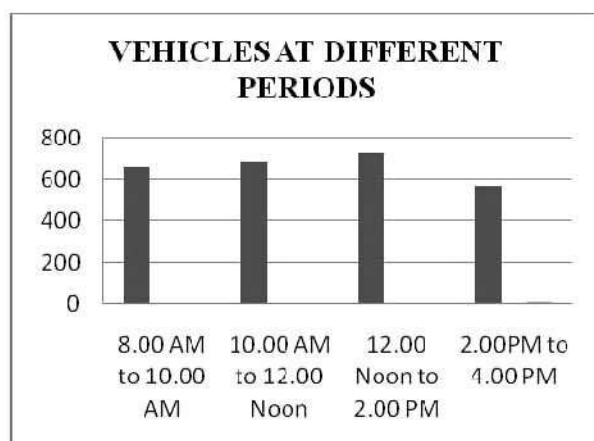
Name of Town: SORBHOG	Name of Road:- NAGAR SAMITY PATH, SORBHOG					
Mode of Vehicle	Mode of time interval					
	8.00 AM to 10.00 AM	10.00 AM to 12.00 Noon	12.00 Noon to 2.00 PM	2.00PM to 4.00 PM	Grand Total	%
Car	29	28	47	54	158	3.77
Bus	01	0	03	02	06	0.14
Truck	05	07	17	08	37	0.88
Two Wheeler	356	369	418	292	1435	34.22
Tempo/Auto	47	82	63	49	241	5.75
Cycle	830	685	468	245	2228	53.12
Rickshaw	07	18	0	23	48	1.14
Thela	12	14	06	09	41	0.98
Total	1287	1203	1022	682	4194	100.00



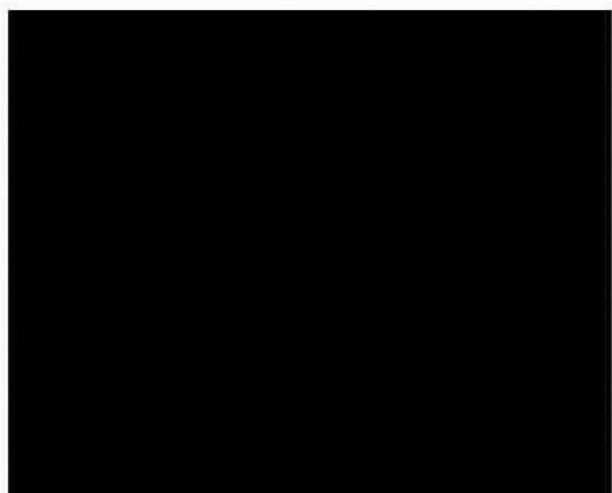
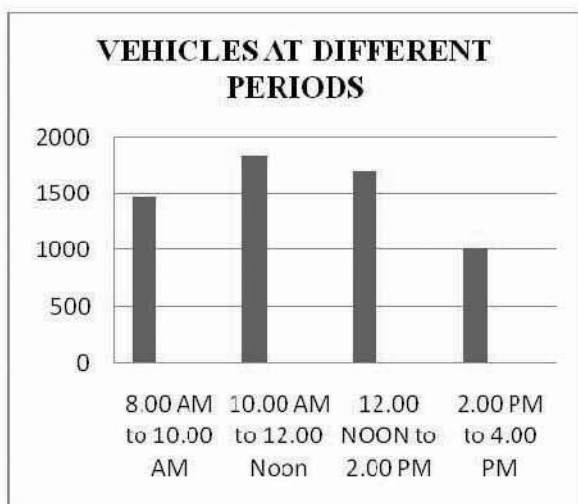
Name of Town: SORBHOG	Name of Road:- GANDHI BHAWAN ROAD to SORBHOG TOWN.					
Mode of Vehicle	Mode of time interval					
	8.00 AM to 10.00 AM	10.00 AM to 12.00 Noon	12.00 Noon to 2.00 PM	2.00PM to 4.00 PM	Grand Total	%
Car	176	112	196	144	628	6.83
Bus	8	10	9	3	30	0.33
Truck	29	30	37	43	139	1.51
Two Wheeler	920	930	905	705	3460	37.64
Tempo/Auto	58	57	71	43	229	2.49
Cycle	825	785	800	470	2880	31.33
Rickshaw	382	565	425	290	1662	18.08
Thela	38	40	50	37	165	1.79
Total	2436	2529	2493	1735	9193	100.00



Name of Town: <b>SORBHOG</b>	Name of Road:- N.H 31 to SORBHOG TOWN VIA COLLEGE ROAD.					
Mode of Vehicle	Mode of time interval					
	8.00 AM to 10.00 AM	10.00 AM to 12.00 Noon	12.00 Noon to 2.00 PM	2.00PM to 4.00 PM	Grand Total	%
Car	75	66	64	87	292	8.94
Bus	0	0	0	0	0	0.30
Truck	43	98	95	71	307	4.38
Two Wheeler	285	345	400	278	1308	39.49
Tempo/Auto	43	33	53	41	170	9.02
Cycle	185	109	90	60	444	25.32
Rickshaw	20	26	20	22	88	10.94
Thela	5	3	2	7	17	1.61
Total	656	680	724	566	2626	100.00

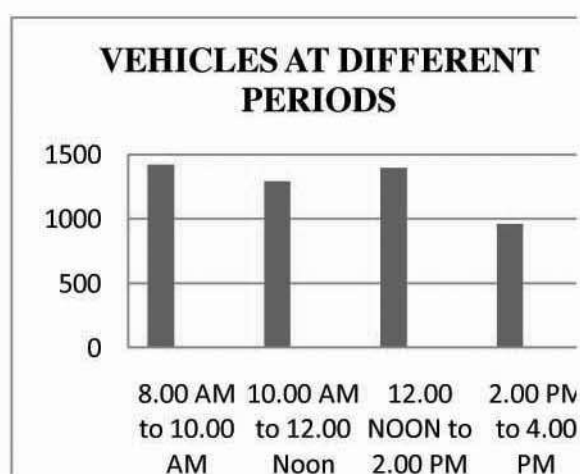


Name of Town: SORBHOG	Name of Road:- N.H 31					
Mode of Vehicle	Mode of time interval					
	8.00 AM to 10.00 AM	10.00 AM to 12.00 Noon	12.00 Noon to 2.00 PM	2.00PM to 4.00 PM	Grand Total	%
Car	503	640	567	421	2131	10.86
Bus	120	161	126	93	500	6.45
Truck	225	308	230	321	1084	4.73
Two Wheeler	402	540	588	498	2028	33.08
Tempo/Auto	101	105	110	125	441	13.56
Cycle	103	46	52	39	240	15.23
Rickshaw	02	22	06	06	36	14.81
Thela	03	2	08	03	16	1.27
Total	1459	1824	1687	1506	6476	100.00





Name of Town: SORBHOG	Name of Road:- SORBHOG BAZAAR TO KAMARGAON VIA RAILWAY STATION					
Mode of Vehicle	Mode of time interval					
	8.00 AM to 10.00 AM	10.00 AM to 12.00 Noon	12.00 Noon to 2.00 PM	2.00PM to 4.00 PM	Grand Total	%
Car	82	57	115	105	359	7.08
Bus	5	3	2	0	10	0.20
Truck	65	56	91	50	262	5.17
Two Wheeler	290	425	309	253	1277	25.18
Tempo/Auto	90	48	105	75	318	6.27
Cycle	782	657	684	443	2566	50.59
Rickshaw	48	8	46	20	122	2.41
Thela	60	36	44	18	158	3.12
Total	1422	1290	1396	964	5072	100.00



### 5.3. : The Existing Roads

The existing roads are proposed to be upgraded in terms of ROW, capacity and other geometrics. The new roads need to be planned and designed for a higher level of service from their entry into Sorbhog MP to their meeting with the CBD orbital Road. Within the core area the roads will lose their characteristics and are to be developed as all-purpose roads. The primary arterial roads have a ROW varying between 15 to 30 m. In addition the city level roads comprise sub-arterial roads (10.5 - 18 m R/W), and collector roads (7.5-10 m R/W).

#### **5.4: Bus Transport Terminals**

1 sub-nodal terminal need to be proposed at the NH-31 and town intersection towards Barpet Road /Guwahati, where all the modes of transport can be organized for a smooth flow into the town areas. The proposal needs to be carried out with the consent of the authorities and a feasibility study to further facilitate it. The sub nodal terminal may be proposed to be developed as multi-use complex, under PPP mode.

#### **5.5. : Local Area Mini Terminals**

Every local area (city municipal ward/ new housing development area), as part of Local Area Plans (LAPs) to provide for mini terminal facilities for bus /alternative services serving the area. These terminal facilities could be incorporated as part of the commercial/facilities complex of the Local Area. Hence no separate allocation and reservation of land is made for these terminals. Care to be taken to provide for easy access and exit provisions, convenient bays for them and shelters for the passengers. Such terminals can be provided in the proposed neighbourhood centres.

#### **5.6. : Pedestrian Facilities**

Walking is a predominant mode in the town. The transport system plan promotes and facilitates walking. The main strategies and measures proposed as part of the plan are as under:

Provision of sidewalks on primary arterials, sub-arterials and collectors on both sides of the road and on at least one side on local roads

Cross pedestrian facilities to be provided as per the warrants recommended by Indian Roads Congress.

Sidewalks on all the major roads to be designed for level of service "C"

Improvement measures in terms of pedestrian controlled facilities at intersections, grade separators and widening of sidewalks in the Central Areas and belong major corridors .

### **5.7. PARKING**

#### **Parking Policy – Need and Dimensions**

Parking policies have become an integral part of modern urban planning strategies as transportation planner and engineers have recognized the substantial impact they may have on mode choice and travel routes , directly effecting urban mobility characteristics.

Every vehicle trip ends in a demand for parking of the vehicle at its trip ends. The parking of vehicles needs extensive and exclusive land area. Otherwise parking would spill over to other use areas like road carriageway and footpaths, open spaces. In turn they affect safety and environmental quality.

The escalating demand and varied needs of parking in Sorbhog can only be met and organized in the framework of a comprehensive Parking Policy. Parking policy needs to move from 'non-restrictive' to

'restrictive' policy. 'Restrictive' policy would include from banning of parking to restricted provision, regulation and pricing of parking spaces.

strategies for managing and controlling parking in Sorbhog as follows-----

1. Provision for the short range transportation needs of the urban area by making efficient use of existing transportation resources and provision for the movement of people in an efficient manner.
2. Elimination of on street parking, specially during peak period .
3. Provision of fringe and transportation corridor parking to facilitate transfer to transit and other high occupancy vehicle .
4. Strict enforcement of parking restriction .



**Road side**

**Parking at Market Area, Sorbhog**

## **Traffic Congestion And Parking Issues**

Traffic congestion and road accidents are two external costs of transport and the reduction of their impact is often one of the primary objectives for transport policy makers . As traffic volumes and congestion grows on highways and urban road ways , freight and delivery service operators become increasingly challenged to maintain dependable and reliable schedules .

Traffic Congestion is a condition in transport that is characterized by slower speeds longer trip times and increased vehicular queuing . Traffic Congestion on urban road networks has increased substantially increased travel time caused by traffic congestion imposes costs to road users , both in terms of

economics loss and also the reduced quality of vehicle and mobility . This increased traffic congestion may lead to more accidents due to increased traffic volume.

To reduce Traffic Congestion ---

1. Optimize traffic - light management .
2. Use C.C T.V. to monitor road condition .
3. Enforce existing road traffic laws .
4. Improve preception of buses.
5. Extend residents' parking zone .
6. Change for workplace parking.
7. Improve cycling infrastructure .
8. Improve bus service .
9. Develop and refine park- and - ride .
10. Road parking.

**Major Traffic Conjestion point in Sorbhog MP Area.**

1. Sorbhog Approach on N.H. 31, (High way Chowk) ---- It is the main transportation and commercial hub of the planning area, as the area passes through N. H. 31. The area consist of many commercial establishments , shops and act as a transfer point of passengers and goods . A lots of other urban functionaries are located in the extended portion of this area.
2. Sorbhog Pach Ali Choak (Infront of JRP H School) ----It is the main entrance point from various part of Sorbhog M.P. Area.
3. Sorbhog Bus stand Area.---It is the main commercial hub of the planning area. It is major transfer point of passenger and goods .
4. Infront of P.W.D. Office

## **5.8. IMPROVEMENT OF ROTARY AND JUNCTION**

### **Improvement of Intersections**

The transport system plan includes improvement of intersection geometrics including provision of channelizes, acceleration/deceleration lanes, traffic signs, lighting etc and provision of appropriate traffic control systems. It is recommended that all the major intersections, especially those on the arterial and sub-arterials be signalized and in the next level of improvement be linked and integrated and brought under a central Area Traffic Control scheme (ATCs). Grade Separators/Flyovers may be built based on traffic intensity, site conditions and environmental acceptability

## **5.9. STREET LIGHTING AND PROPOSED IMPROVEMENT PLAN**

The basic idea of Street Lighting is to provide uniform level of illumination on road at horizontal and vertical level and provide a safe and comfortable environment for night time.

Lighting design is basic idea of the selection and the location of lighting equipment to provide improved visibility and increased safety.

Street lighting systems should be designed in a way to avoid significant differences in illumination levels at the light source and on the road areas.

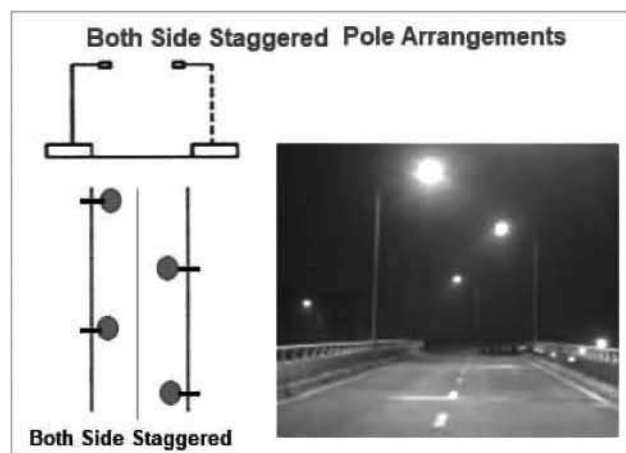
Road lighting provides visual conditions for safe , quick and comfortable movement in the roads.

### **Specification of effective street lighting**

1. High lamp efficiency
2. Cost effectiveness.
3. Good colour rendering.

### **Street light arrangement**

1. Arrangement - In one side pole layout all luminaries are located on one side of the road.
2. Bothside Staggered pole layout -- Alternately on each side of the road .
- 3.Both side opposite pole layout--Luminaries are located on both side of the road one after another.
4. Twin -central pole layout-- Luminaries are mounted on a T-shaped in the middle of the centre island of the road.
5. Pole Height-- The Installation height of the lamp be equal to or less than the effective width of the road.



### 5.10. SIGNAGE - AVAILABILITY AND REQUIREMENT

Understanding each and every traffic sign is among the most important aspect for all road user. It is important for all to know about the traffic signs of the road safety signs in order to ensure the safety of himself as well as others. The basic functions of signage include --

1. Inform road users of the distance left to cover to reach a destination.
2. Inform road users of the alternative routes to destination.
3. Caution road users of hazards near areas such as school and colleges
4. Inform road users of specific locations as parking and non parking.

**For Sorbhog Master plan area following points are required regarding availability of signage.**

1. All on-street parking spaces need to be clearly defined by lane markings.
2. Adequate and appropriate signage's to be installed at all places on the street network to identify 'parking' and 'no parking' areas.
3. Off-street parking places to be clearly identified by signs and distinguishing marks.

### **5.11: Major Proposal .**

#### **Planning for Goods Movement**

1. Planning for goods generating activities like wholesale markets, major industries, warehousing and storage areas, etc. in major town area of Sorbhog.
2. Construction of Cycle, Motor Cycle, Parking Place at suitable location in Town area.
3. Construction of Road side Street Parking Area at suitable location in Town area.
4. Construction and Development of Road side Car Parking Site at Different suitable location in Town Area.
5. Automatic Traffic Signal at JRP Approach point , National High way Chock point and Bus Stand Approach Point.

#### **Proposed Road Network**

No such road network has been proposed at this time. Only betterment has been recommended at this time. Black topping and a minimum of 7.5 meter ROW need to be maintained at all levels while preparing the Local area plan. By preparing LAP, macro level details will be met up , rather taking the entire town pattern at the outset.

## 6 CHAPTER: Physical Infrastructure, Public Utilities & Services .

### 6.1.1 Water supply

#### Present Water Supply Status

Main source of water is ring well and tube well in Sorbhog Master Plan Area. Govt. Water Supply Scheme are still not available in Sorbhog Master Plan area.

The National Drinking Water Program to provide Functional household Tap connection to every rural house hold ie. Har Ghar Jal by 2024. The kind of works/schemes which are proposed to be taken up under JJM include in village water supply (PWS) infrastructure for tap water connection to every household.

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### 6.1.2: Drainage System

#### 6.1.2.1: Existing Drainage System

The existing drainage network of Sorbhog town is mostly earthen in nature and is in need of improvement. Most of the new residential areas have grown without having drainage facilities. Main market area and some residential areas have RCC drains but due to lack of the total network these drains get clogged due to blockage in the earthen drains.

Drain Types	Length (in km.)
1. R.C.C cover drain	2.30
2. Brick drain (Covered)	1.30
3. Brick Drain (Open)	0.80

### 6.1.3: Sanitation

Sanitation system aim to protect human health by providing a clean environment that will stop the transmission of diseases. A sanitation system includes the capture, storage , transport, treatment and disposal or reuse of human excreta and waste water. It also maintain hygienic conditions through services such as garbage collection, industrial /hazardous treatment and disposal.



#### **6.1.4: Sewerage System**

Modern sewerage system falls under two categories. Domestic and Industrial sewers and storm sewers. Sometimes a combine system provides only one network of pipes , mains and outfall sewers for all types of sewage and runoff . The preferred system , however provides are network of sewers for domestic and industrial waste , which is generally treated before discharge , and a separate network for storm runoff , which may be diverted to temporary detention basins or piped directly to a point of river.

#### **Existing Sewerage System**

Presently the Sorbhog MB does not have any integrated sewerage system. There are generally septic tanks in the municipal boundary. The effluent is released untreated into the nearby drains and low-lying areas. Similar is the case of industrial wastewater. In case of septic tanks, the soak pits are becoming non-functional in many areas because of high sub-soil water table within a short span of time.

#### **Recommendations:**

- Proper schemes should be brought forward by the authorities to improve the situation and system of drainage and sewerage in the Sorbhog MP area.
- The encroachments on existing natural drainage system, which is the main reason for the blockage, should be stopped.
- Existing manholes of drain are inadequate; more manholes and inlet are required for the quick disposal of silt and stagnated water. The size of the inlet holes and their position need to be redesigned.
- Silt pit of proper size should be constructed in suitable areas and provision of periodical cleaning the silt pit should be done to avoid blockage in the drainage system.
- Effective garbage collection system (including domestic and other type of garbage) to be in place so that this does not block the drainage channels.

#### **6.1.5: Solid Waste Management**

- There is no planned solid waste management system or even a landfill site for scientific disposal of the solid waste at Sorbhog.
- Sorbhog Town Committee collect the garbage through manual operation and the dump yard is located 4 km away from the town.
- Presently Sorbhog Town Committee is collecting approximately **10 MT** of solid waste with manual loading from road side to trailer tractor and hand craft for transportation .
- Required machinery is not available to collect and dispose the garbage . Segregation of the municipal solid waste and bio-medical waste is also not done.

Presently important sources of solid waste generation are- (i) Residential areas including slum habitations (ii) Fruit and vegetable market (iii) Hotels and restaurants (iv) Hospitals (v) Drains de-silting (vi) Commercial & Industrial wastes from these areas.

It is therefore recommended that the municipal authority looks for proper landfill sites and then in collaboration with the town and country planning dept, a suitable sustainable plan is further prepared to serve the present and the future needs of the area.



**Dumping Ground, Sorbhog**

**Recommendations:**

1. Solid waste open burning .
2. Solid waste sanitary land fills
3. Incineration method.
4. Composting process .
5. Disposal by ploughing into the field .
6. Disposal by hog feeding .



**Garbage Collector**

**Garbage Collector****6.1.6: ELECTRICITY**

SL. NO.	LOCATION	URBAN	RURAL	DOM	COM	IND	GEN	GEN EDU	GOVT. UTILITY	PUBLIC UTILITY	STREET LIGHT	ENERGY CONSUMED PER DAY/MONT (Kwh)
1	SAHPUR		378	341	29	2	4	2	0	0	0	17327
2	SORBHOG GAON		99	96	1		1	1	0	0	0	6029
3	PUTHIMARI		165	162	0		0	2	0	0	1	5881
4	DURAMARI		336	331	1		3	1	0	0	0	14561
5	AHOM PATHAR		351	343	3		2	3	0	0	0	12026
6	SANTRADAHA		154	154	0		0	0	0	0	0	4595
7	BAIRAPUR		65	65	0		0	0	0	0	0	5558
8	KALITAPARA		447	440	2		2	3	0	0	0	18802
9	AMGURI		300	290	6		3	1	0	0	0	13361
10	SANTABARI		68	66	0		1	1	0	0	0	1602

11	KETEKIBARI		152	150	2		0	0	0	0	0	4857
12	DAKSHIN GANAKGARI		736	697	33	1	2	3	0	0	0	34625
13	BAREGAON		373	357	14		2	0	0	0	0	18502
14	NIZDAMAKA		342	327	10	1	3	1	0	0	0	18614
15	SORBHOG TOWN		2256	1826	379	0	21	5	0	4	21	113010
16	NOONTOLA		237	234	0		0	3	0	0	0	8078
17	RAMPUR		270	267	1		0	2	0	0	0	13217
18	GELLAPARA		626	613	6		6	1	0	0	0	31485
19	UTTAR GANAKGARI		443	410	27		3	3	0	0	0	20691
20	BANDARKHOWA		303	299	2		1	1	0	0	0	11955
21	BATABARI		31	31	0		0	0	0	0	0	4783
	Total		8132	7499	516	4	54	33	0	4	22	379559

Source: APDCL, Sorbhog

Electricity: Assam State Electricity Board provides electrical supply for the town. 516 nos. are commercial, 4 nos. are industrial, 4 nos. are public lighting, 54 nos. are general and remaining 7499 nos. are domestic. There are 22 numbers of street lights and covering all the wards. Energy consumed per month is 379559 kwh (as per February, 2022).

## 6.2. Social Infrastructure

### 6.2.1. Education

The Education in the State is classified in the following categories:

Table 7.1: System of Education in the State

Elementary Education	Age 6-14 years	Classes I-VIII
Primary		
Upper Primary		
Secondary Education	Age 14-16 years	Classes IX-X
Higher Secondary	Age 17-18 years	Classes XI-XII
Higher Education		
University		
Institutes of National Importance		
Degree Colleges		
Technical and Vocational Education		
Vocational Institutes		
Source: Economic Survey of Assam 2003-04.		

There are a few educational schools and colleges like Barnagar High School , Bisshnujyoti High School, Barnagar Girls H.S School, Uttar Ganakgari etc.

Apart from these educational Institutions Sorbhog has Barnagar College, which is a degree level college for science & arts streams and it is a reputed institute of the region.

**6.2.2. Health**

There is one Community health center, one Dispensary and five Sub- Centre in the Sorbhog Master Plan Area.

**Norms for Health facilities**

The Norms and Standards for provision of Health Infrastructure in urban areas adopted for Sorbhog MP-2041 are given in Table. This is worked out to provide for 5 beds per 1,000 populations and also to result in a balanced distribution of health facilities throughout the city.

**Table :Planning Norms and Standards for future provision of Health Infrastructure**

Sl. No.	Category	Population Served	Hierarchy	Planning Norms and Standards	
				Population /Unit	Plot Area
1	General Referral Hospital (500 beds)	5 Lakh	District	1 for 2.5 lakh	6.0 ha
2	Intermediate Hospital A (200 beds)	1.0 lakh	Community	1.0 lakh	3.7 ha
3	Intermediate Hospital B (80 beds)	1.0 lakh	Community	1.0 lakh	1.0 ha
4	Nursing Homes, Child Welfare, Maternity Centre, Polyclinics	1.0 lakh	Community	0.45 lakh to 1 lakh	0.2 to 0.3 ha
5	Dispensary	0.15 lakh	Neighbourhood	0.15 lakh	0.08 to 0.12 ha
6	Medical College		City Level	Total City	15.0 ha
7	Speciality Hospital – City Level		City Level	Total City	8.0 ha

NAME OF HEALTH INSTITUTION	NO .	DOCTOR S	TUTOR S	GN M	AN M	PHARMACIS T	VACCINATO R	HEALT H VISITO R	SANITARY INSPECTO R	OTHER MEDICA L PERSON S
MEDICAL COLLEGE & HOSPITAL	0	0	0	0	0	0	0	0	0	0
CIVIL HOSPITAL	0	0	0	0	0	0	0	0	0	0
CHC	0	0	0	0	0	0	0	0	0	0
BPHC	0	0	0	0	0	0	0	0	0	0
MPHC	0	0	0	0	0	0	0	0	0	0
DISPENSAR Y	1	1	0	1	2	0	0	0	0	1
SUB CENTRE	4	0	0	0	10	0	0	0	0	6
URBAN CENTRE	0	0	0	0	0	0	0	0	0	0

Source: Joint Director of Health Services, Barpeta.

### 6.2.3: Recreation and Sports

Sorbhog has one number of children's park which is known as Swahid Amiya Bharpati Sishu Udyan at Nizdamaka. A kind of Mini Stadium is also located at Uttar Ganakgari in the Sorbhog MP area. Although Sorbhog town has a few hectares of eco-sensitive area like the some farm lands and open grounds, but a very few developed parks and playgrounds are available.

Hence civic bodes need to identify and create and also develop the open spaces into organized spaces like parks and playgrounds. The main drawback for not being able to locate a specific area is for all being private lands. So if the space cannot be acquired for the purpose for some reasons , this way keeps flexibility.

Moreover **one community centre and neighbourhood play areas** needs to be develop after consultaion with the residents.

There is no any Cinema Hall in Sorbhog MP areas. But seeing the growing demand of movie lovers, a **state of the art, cinema** hall needs to be thought for.

**6.2.4: Police**

Presently, there is 1 Police Station and no other Police Outposts in Sorbhog MP. There is one existing jail. Provision of police out posts needs to be incorporated at each of the villages added under the main police station for a regulated and crime free area.

**6.2.5: Fire**

Fire Services are needed for protecting people from fire hazards, building collapses, and other unforeseen emergencies. At present, there is 1 Fire Stations in Sorbhog Mp area.

Now that the planning area has increased a need for further **2 fire sub-station** within the planning area needs to be accommodated.

**6.2.6: Postal Services**

The town has a 1 post office. Few Courier services has come up recently in the town and trending at a large pace.

**6.2.7: Telecommunication**

Sorbhog has one Telephone Exchange.

**6.2.8: Distributive facilities**

Distributive Facilities include Milk Distribution, LPG Storage and Distribution and Petrol Pumps.

Norms and Standards and Provision

Planning Norms for Milk distribution and LPG storage are given in Table

Table: Planning Norms and Standards for Distributive Facilities		
Sl. No.	Category	Planning Norms and Standards
1.	Milk Booth/Milk and Fruit and Vegetable Booth	One per 5,000 population ( in residential developments)
2.	LPG Godown including Booking Office.	3 LPG Godowns per 1 lakh population in facility centres.

**6.2.9: Cremation and Burial Grounds**

At present there is 1 cremation grounds in municipal area namely Sorbhog Crematorium .There is 1 Burial ground also.



**Infrastructure Proposal**

1. Development of a Mini Stadium with spectators galleries and modern facilities.
2. Construction of Open Theatre with all modern facilities.
3. Construction of Public Auditorium with all modern facilities.
4. Proposal for construction of 2 nos. of Modern park within the municipal area.
5. Proposal for construction of 1 Children park and 1 Community centre at each revenue villages of the planning area.
6. Community centre at each revenue villages of the planning area.



**Public Auditorium, Model**

## **7 CHAPTER : ENVIRONMENT AND CITY BEAUTIFICATION PLAN**

### **7.1. Description .**

Environmental and City beautification Plan is a fundamental purpose of urban design at this time .In recent years , cities shows increasing sign of environmental problems due to the negative impacts of urban activities .The degradation and depletion of natural resources , climate change pressure on green areas have become major concern for cities. An extremely important function of an urban ecosystem is to provide healthy and sustainable environments for both natural system and communities .

For Sorbhog Master Plan Area , Environment and City beautification could be describe as a process of making visual improvements in the planning area .This is often involves painting trees , shrubbery and other greenery . It may involve decorative or historic main street development. Beautification is a key aspect of community development and it can be an easy way to bring people together .The most important factors for making human life more pleasant are "creating peace, beautifying the spaces , reducing the pollution and regulating the urban graphics and visual arts, besides protecting the society against psychological harms. It is important for people's good health that community they live in is not only clean and free from rubbish, but that is a comfortable and pleasant place in the other way.

There are a few water bodies around Sorbhog Master Plan Area, like, Sorbhog bil.

### **7.2. Plan/Measures For Protection And Conservation Of Environmentally - friendly Zone**

The concept of eco- sensitive zone is an initiative by Government of India to advocate sustainable development apace with the conservation of natural heritage. The Ministry of Environment and Forests has come out to spawn Eco - sensitive Zones around these protected areas. Environmental protection is the practice of protecting the natural environment by individuals, organizations, and Government .Its objectives are to Conserve natural environment and where possible, to repair damage and reserve trend.

Key Point for Protection And Conservation Of The Environmentally- Friendly Zone Of Sorbhog MPA-

1. Reduce , reuse and recycle.
2. Volunteer for clean-up in own community.
3. Educating people.
4. Choosing sustainable.
5. Planting Trees.
6. Safeguarding biodiversity.
7. Maintaining ecosystem balance.
8. Maintaining water quality .

## 9. Conserving natural resources .

### 7.2.1. Heritage Conservation and Tourism

#### Heritage Conservation

Sorbhog and its surrounding areas are rich in cultural and historical heritage. There are a number of important archaeological and architectural sites of historical importance. Strategy for Conservation Built heritage of these places needs to be protected, and nurtured and passed on to the coming generations. For this purpose, a conservation committee (CC) may be established by the administration. The CC shall prepare a list of Heritage sites/buildings based on the following criteria:

- a) The age of the building;
- b) Its special value for architectural or cultural reasons or historical periods
- c) Its relevance to history
- d) Its association with a well-known character or event
- e) Its value as part of a group of buildings
- f) The uniqueness of the building or any object or structures fixed to the building or forming part of the land and comprised within the cartilage of the building. Also refer Section 13.5.

#### Tourism

Major Tourist Attractions in and around of Sorbhog's are-

##### 1. Gorokhia goxai than

Gorokhia Guxai Than is the biggest temple in Sorbhog. This place I a religious one and devotees flock to the area to offer their prayers and to make wishes come true. The sprawling area of 25 bighass of the than is lavishly decorated for dol or the colorful holi festival.



Gorokhia Guxai Than, Sorbhog.

## 2. Moinbari Satra

It is one of the major Sankardeva's religious establishment at Moinbari and it is a centre of art, culture, literature and classical studies of minority muslim dominated Moinbari area. Moinbari satra was founded by Narayan Das Thakur Ata. Satra campus may be upgraded providing all infrastructures facilities to attract all devotees within the locality.



Moinbari Satra, Sorbhog.

## 3. Rajar Dhip

It is located at Dakhin Ganakgari in Sorbhog. It was established during 16th century at Barnagar. It was established by Gohai Kamal who was the brother of Koch King Naranarayan. It may be preserved and campus area may be upgraded to attract the tourist.



Rojar Dhip, Dakhin Ganakgari.

**4. Ramie (Riha) Research Centre:**

The ramie research centre was established at Sorbhog more than five and a half decades ago. This research station is a sub-station of the Central Research Institute for Jute and Allied Fibres, Barrackpore, West Bengal.



Riha Research Centre, Kamargaon, Sorbhog.

**5. Nuni Firm:**

A famous Nuni firm is located at Nuntola Village in Sorbhog MP area which may be developed with modern technology of weaving and yarn technology.

**6. Thakur/Thakurani Temple:**

Sri Sri Thakur/Thakurani temple is located at Kalitapara in Sorbhog. Most of the devotees visit this temple in every year and may be upgraded with atithisala facilities.



Thakur/Thakurani Temple, Kalitapara.

### 7. Xila Guxai Than:

This temple is located at Amguri in Sorbhog. Most of the devotees visit this temple in every year.



Xila Guxai Than, Amguri.

Hence the Assam Tourism should aim to position tourism as an engine of economic growth and to harness and its multiplier effects for employment generation and economic development around the planning area.

For this to happen infrastructure at local level needs to be improved, as this head in interlinked with the other provisions of the master plan. All infrastructure connected with tourism such as good roads, hotels and safari resorts, and information support services needs to be developed. Basic amenities like clean public toilets, easily accessible telecommunication services, tourist information centres, banks and currency exchange centres, food courts and restraints, hotels and lodges etc. among other services to be provided. Quality Hotels, recreation and shopping centres, local transportation, taxi services etc. Development and maintenance of the tourist destinations. Developing the handicraft and handloom haats.

### 7.3: Environmental Planning .

Working out ahead of time where schools, playing fields, houses, shops and other building and facilities will be build in city or town is called environmental planning.

**A good planning proposal for Sorbhog Master Plan Area may be provide for ----**

1. Areas such as roadside reserves, playgrounds, gardens and parks which can be made more attractive by planting trees shrubs and grass.
2. Plenty of good places to play and exercise.
3. Shady places in which to sit and talk.
4. Shops, public toilets, health centres and other important facilities which are easy to reach.

5. Roads , footpaths and street lighting which allow people to get around the community easily and safely .
6. Water and power supplies to every house and public safely .
7. Sewage and rubbish disposal systems which will meet the community's requirements .

#### **BENIFITS OF ENVIRONMENTAL PLANNING**

- O. A clean and healthy environment .
- O. A nice, pleasant place where to live healthier people .
- O. Plenty of places to play and exercise .

#### **7.4: CITY BEAUTIFICATION PLAN/PROPOSAL .**

##### **7.4.1: Road Side Plantation .**

Under severe climatic conditions, selected roadside trees can form wind breaks and shelter belt to protect crops, and help to reduce climatic excesses and soil erosion .They can restore some ecological diversity to areas of agricultural monotony.

For Sorbhog MP area the spacing and arrangements of the trees should be such that they do not create any obstruction in the movement of traffic. The general rules and or guideline for spacing and location of trees are as follows.

1. The spacing between two trees in a row along the road should be within 9m to 12m.
2. The trees should be planted at least 12 m apart from the centre of the carriageway.
3. In the case of water logged area , the trees should be planted on sufficient high ground.
4. Trees are planted both side of the road .
5. The trees should be planted in such a way that gives better shade on the carriageway through the year. That's why staggered way is most preferable for the planting of trees on road side.



**Road side Tree Plantation, Model.**

#### **7.4.2: Urban Agriculture And Urban Forestry.**

Growing the Urban forest, a stated goal of many municipalities often occurs through programs targeting the planting and protection of trees on private residential property. At the same time, backward agriculture is gaining in popularity with the support of municipalities, NGOs etc , while an extensive tree canopy has numerous ecological , social and economic benefits , it also has the potential to shade out other forms of vegetation .

These project will explore the tensions between Urban forest and backward agriculture in Sorbhog Master Plan Areas by -

1. Focusing on tree and food crops .
2. Mapping yard- level location of trees and other agricultural product and linking these datas to large scale patterns using high resolution imagery.

#### **7.4.3: URABAN AGRICULTURE**

Urban agriculture can contribute to minimizing the effect of climate change by , at the same time, improving quality of life in Urban areas .In order to do so most effectively land use and special planning are crucial, so as to obtain and maintain a supportive green infrastructure .



For, the scope of urban agriculture, thereby is to establish food production sites within the Sorbhog Master Plan Area as follows ----

- O. Indoor agriculture .
- O. Vertical farming .
- O. Rooftop production .
- O. Edible walls.
- O. Edible landscape.
- O. School garden.
- O. Community gardens.

#### **7.4.4: URBAN FORESTRY**

Urban forest have several environmental benefits . Trees reduces air pollution . Urban forestry provides the most effective air pollution measure for any city .It is the care and management of single trees and tree population in urban setting for the purpose of urban environment .The concept of urban forestry, which advocates the role of trees as a critical part of urban structure , was developed to addresses the issue of impact on forestry by urbanization . Aside from the beautification of the urban environment , they offer physiological , sociological and economic benefits towards society.

For Sorbhog urban area , urban forestry comprises all green elements , such as ---

- o. Street trees and road plantation .
- o. Public green areas , such as parks , gardens etc.
- o. Semi private space , such as green space in residential areas and industrial parks.
- o. Natural forests under urban influence , such as natural reserves etc.

#### **Five steps to meet the goals and facilitate a successful urban forestry process-**

1. Form a team .
2. Analyze the current condition .
3. Engage the community .
4. Create the plan .
5. Implementation.

**7.4.5: Public Rain Water Harvesting Scheme .**

Rain Water Harvesting can be defined as activity of direct collection of rain water and storage of rain water as well as other activities aimed at harvesting and conserving surface water and ground water, prevention of loss aiming at most efficient utilization of the rain water towards best use for the humanity .

The Environmental Benefits Of Rain Water Harvesting Scheme.

- > Rain Water Harvesting can reduce storm water runoff from a property .
- > By reducing storm water runoff , rain water harvesting can reduce a storm's peak flow volume and velocity in local creeks , streams and rivers , thereby reducing the potential for streambank erosion.
- > It is an alternative supply during water restrictions .

**7.4.6: SURFACE RUNOFF HARVESTING**

In urban areas , rain water flows away as surface runoff . This runoff can be caught and used for recharging aquifers by adopting appropriate methods.

**7.4.7: ROOFTOP RAIN WATER HARVESTING**

It is a system of catching rainwater where it falls. It can either be stored in a tank or diverted to an artificial recharge system .This method is less expensive and very useful ,if implemented correctly , helps in augmenting the ground water level of the area.

**7.4.8: RAIN WATER HARVESTING SCHEME FOR SORHOG MASTER PLAN AREA.**

There are no any public rain water harvesting schemes for Sorbhog Master Plan Area. The rain water harvesting and conservation technique may be successfully execute at the area , as many of the area get effected during rainy season. The main objectives of the schemes are as follows.

1. Augment the ground water recharge through surplus water available in the area.
2. To arrest the rate of decline of ground water level ,
3. To monitor the rate of decline of ground water levels .
4. To develop the technology for artificial recharge, specially in Sorbhog Urban area and also quantify the volume of recharged water .

5. To create awareness in the society for proper management of ground water resources .

For public rain water harvesting scheme , salient feature of artificial recharge to ground are as under.

1. Average annual rainfall to calculate.
2. Total area to be taken .
3. Depth of water level to calculate .
4. Water availability for recharge .
5. Expected recharge .

#### **7.4.9: Development Of Parks And Recreational Spaces.**

Existing parks and recreational places of Sorbhog master plan area.-

##### **1. Swahid Amiya Bharpati Sishu Udyan:**

It is located at Niz Damaka in Sorbhog MP area. It was inaugurated on 7<sup>th</sup> of Feb in 2022.



**Swahid Amiya Bharpati Sishu Udyan, Niz Damaka, Sorbhog.**

**2. Braja Sadan:**

It is located at Gella Para in Sorbhog MP area. It was inaugurated on 12<sup>th</sup> of September in 2019 on the occasion of 60<sup>th</sup> death anniversary of Shilpi sainik Brajanath Sarma.



**Braja Sadan, Gella Para.**

**3. Mini Stadium:**

A Mini stadium is located at Uttar Ganakgari in Sorbhog. It provides various opportunities to sports lovers.



**Mini Stadium, Uttar Ganakgari.**

#### **4. Sorbhog Beel:**

Sorbhog Beel is located at Puthimari in Sorbhog MP area. Its charming scenic environment attracts people very much. This beel also provides good source of income through fishing.



**Sorbhog Beel.**

Preserve and enhance parks and recreational spaces within the Master Plan Area , to meet active and passive recreational needs , improve environmental quality , enhance the identity and character of district neighbourhoods and provide visual beauty.

The policy may be taken on how existing gaps might be closed and how new facilities can be adopted to meet future needs like recreational and athletic facilities , including play field , tennis court , swimming pool , and other open areas for other sports activities .

Provide for the continuing maintenance , renovation , and upgrading of the parks and recreational facilities to prevent their deterioration and ensure that they continue to meet community needs .

## **PROPOSALS**

Steps might be taken as follows --

### **1.RESIDENTIAL YARD.**

Recognize the value of Residential yards as a component of cities open space system and discourage increased coverage of such areas .

### **2.COMMON OPEN SPACE IN NEW DEVELOPMENT.**

Provide incentives for new and rehabilitated building to include green roof , landscaped open area and other common open space areas that provide visual relief and aesthetic balance .

### 3. TRAFIC AND RECREATIONAL PLANNING.

Various traffic congestion, it is observed around recreational facilities when major events are held, because of the concentration of private vehicles before and after the tournaments. Recreational facilities should be well served by public transportation.

#### 7.4.10: Identification And Demarcation Of Multi- purpose Open Spaces For Sports, Cultural Functions, Fair, Circus etc.

Open space are the placement of major civic and public gathering, ceremonial spaces for recreation and leisure. These places are an expression of the public culture.

The purpose of identity and demarcation of multipurpose open space required by-----

- a/ Identify the current and future needs of Sorbhog Master Plan Area.
- b/ Review and analyse the open space and indoor facilities.
- c/ Recommend local provision standards for all type of open spaces.

Open space can serve a number of functions within the urban fabric town. For example, the provision for play and informal recreation, a landscaping buffer within and between the built environment and a habitat for the promotion of Biodiversity can all provide valuable amenities for residents and visitors.

Each type of open space has various benefits, depending on its type such as allotment for individuals to grow their own produce, play areas for children, playing pitches for children etc. Open spaces can additionally perform a secondary function, such as cultural functions, circus, fairs in addition to facilitating sports and recreation.

Mini stadium of Uttar Ganakgari is one and only multipurpose open space within the Master Plan Area. Additionally there are a number of small open spaces in the Municipal area. A balance is needed between different type of open space in order to meet the full spectrum of local needs as follows -

1. Indoor sports facilities - All facilities should be built.
2. Provision for children and young people. - Within an equipped playground, there should be a range of at least five different type of well maintained pieces of equipment.
3. Outdoor sports facilities - Clean litter free sports facilities should be provided with appropriate, well drained, well maintained facilities.

The main purpose behind creating an open or public space is that people can gather here during trouble or any event. Also these should centrally locate, so people could access them from anywhere, plus they represent the city's history, culture and become iconic sites of cities.



**Open Theatre, Model.**

#### **NEW PUBLIC SPACES -**

The growth of community - led project is creating public spaces that has a very local and specific uses related to local needs and physical qualities and feature of their local environment . The hosting of events on open spaces has become increasingly popular with local providers. The number of events on city's premier sites , mainly district or sports level events, Bihu function, Shree Krishna Rash festival , Book Fair, Trade fair on these open spaces , as well as ample opportunities for such events on some of the smaller local open spaces in the Municipal areas .

### **7.5: Beautification Of Major Transit Zones.**

#### **MAJOR JUNCTIONS**

1. N.H. 31 junction is located at N.H. 31, locally known as High Way Choak, 1 km away from main bus stop of Sorbhog . It is a four leg intersection with arm leading towards Guwahati on east , Bongaigaon on west and Village Amguri and old Air port on south and Sorbhog town on north . The major objective of this study is to give an alternative and long term solution for the improvement of the present condition by concept of " congestion Free Corridor " .

#### **OBJECTIVES ARE-**

1. To provide higher level service .
2. To control speed limit .
3. To arrive with a best proposal to reduce traffic congestion , delay and queue length.

4. For other junctions like JRP approach, PWD approach, Railway crossing approach , a beautification plan / proposal may be taken for signal free corridor.

#### **7.5.1: BUS DEPOT.**

There is no any existing Bus stand in Sorbhog. For over hauling the Government Bus Stand , it will not only be rejuvenated as a hub for long distance and short distance buses but will also offer a slow of facilities to passengers . The existing Road side bus stand, situated at the heart of Sorbhog Town , does not meet the needs and facilities of passengers . The current station of bus depot is neither capable of fulfilling the needs of increasing uses nor clarity of functions / aesthetic qualities .

The purpose is to design a functional and social transportation complex in Sorbhog , by using the potential of land and realize that its nature as a landmark. The terminus will feature a complex transit structure . It will be connected to the nearby Railway station . The structure will feature offices of transport companies , service centre of heavy vehicle manufacturers , shops offering goods and services to bus / truck drivers need and warehouses and godowns for transporters to unload goods and distribute those using smaller trucks . It will be occupied with WI-FI so that transport companies can keep on eye on their vehicles using GPS.

#### **7.5.2: MARKET ZONES.**

- a) Car free zone with only pedestrian movement inside on central market area .
- b) Proper vending zone.
- c) Cleaning of market places .
- d) Removal of unauthorized road side kiosks.
- e) proper drainage .

#### **7.5.3: Beautification Of Signage And Street Furniture.**

##### **7.5.3.1: SIGNAGE.**

Signage system play a number of important role . They provide information and direction for people to find their way around a site , help to maintain the site's image and coherence and encourage learning.

Besides conventional signboards , maps , kiosks and other elements may be use as signs and placing signs at other site amenities like benches , cafes and intersections can help to create mini destinations in the open space.





Signage, Model.



**Street Furniture,Model.**

#### **7.5.3.2: PROPOSAL**

- a) Regulatory signs for traffic control in Mp Area,
- b) Warning signs for existing and potentially dangerous conditions for bridge , crossing etc.
- c) Information signs to inform visitors about the sites of Sorbhog Master Plan Area.
- d) Educational signs to get people interested in unique features of sites .
- e) Clearly visible and directional sign should be visible from a distance of at least 20 meter for clear visibility.

## 8 CHAPTER : Land Use Plan

Land-use planning leads to land-use regulation, which typically encompasses zoning. Zoning regulates the types of activities that can be accommodated on a given piece of land, as well as the amount of space devoted to those activities, and the ways that buildings may be situated and shaped.

The term “planning”, which relates to land use, is historically tied to the practice of zoning. Conventional zoning has not typically regarded the manner in which buildings relate to one another or the public spaces around them, but rather has provided a pragmatic system for mapping jurisdictions according to permitted land use.

Land use planning practices evolved as an attempt to overcome the urban settlement challenges. It engages citizens and policy-makers to plan for development with more intention, foresight, and community focus.

**TABLE 3.1 EXISTING LAND USE ANALYSIS**

Sl. No.	Land Use	Area (Sq Km)	% of Total Developed Area	% of Total Area
1	Residential	9.59	74.86	24.26
2	Commercial	0.23	1.80	0.58
3	Public & Semi public	0.76	5.93	1.92
4	Industrial	0.03	0.23	0.08
5	Transportation	1.82	14.21	4.60
6	Recreational/ Open Space	0.38	2.97	0.96
	<b>Total Developed Land</b>	<b>12.81</b>	<b>100.00</b>	<b>32.41</b>
7	Agriculture	20.73		52.44
8	Plantation	0.27		0.68
9	Water Bodies	5.72		14.47
	<b>Total Master Plan Area</b>	<b>39.53</b>		<b>100.00</b>

It can be seen from the above table that there is no proportionate and adequate distribution of land for various land uses. It is seen that residential area enjoys the major share i.e. around 24.0319 % among developed area. In the total Master Plan Area around 53.03% of land is under Agricultural land use.

**PROPOSED LANDUSE:**

Sl. No.	Land Use	Area (Sq Km)	% of Total Developed Area	% of Total Area
1	Residential	15.04	67.05	38.05
2	Commercial	0.97	4.32	2.45
3	Public & Semi public	1.04	4.64	2.63
4	Industrial	0.25	1.11	0.63
5	Composit Use	0.05	0.22	0.13
6	Transportation	2.34	10.43	5.92
7	Recreational Proposed	2.74	12.22	6.93
	<b>Total Developed Land</b>	<b>22.43</b>	<b>100.00</b>	<b>56.74</b>
8	Agriculture	10.63		26.89
	Plantation	0.27		0.68
9	Green Belt	0.46		1.16
10	Water Bodies	5.74		14.52
	<b>Total Master Plan Area</b>	<b>39.53</b>		<b>100.00</b>

**Table: 8.2 Land use Distribution SMA**

Landuse	UDPF Norms	Norms for HMA	Area in Sq KM	PC to Develop area	PC to Total area	Area in Hectare	Land in Hectare allocation per 1000 Population
Residential	45-50	48	17.61	67.05	44.58	1761	42.52
Commercial	2 to3	5	0.89	4.32	2.25	89	2.15
Industrial	8 to 10	10	0.09	1.11	0.23	9	0.22
Public & Semi Public	6 to 8	8	0.84	4.64	2.12	84	2.03
Recreational/ Parks & Play ground and open space	12 to 14	14	0.43	12.22	1.09	43	1.04
Transport & Communication and utilities	10 to 12	15	1.80	10.43	4.55	180	4.35
Composite use				0.22			
		<b>Total</b>	<b>21.66</b>	<b>100.0</b>	<b>.....</b>	<b>2166</b>	<b>0.0</b>
River/ Water Bodies	.....	.....	5.74	.....	14.55	574	0.0
Agriculture/	.....	.....	10.63	.....	26.89	1063	0.0
Plantation			0.27		0.68	27	
Green Belt			0.46		1.16	46	
<b>Total</b>		<b>100</b>	<b>39.53</b>	<b>100.0</b>	<b>100.0</b>	<b>3953</b>	<b>52.29</b>

Source: Calculated By Town &amp; Country Planning Assam, Dist Office Barpeta.

The Land Use Plan – 2041 for SMA has been prepared considering:

- i) Accommodating existing and future development.
- ii) Improvement of existing condition of SMA and to develop the urban structure with a population of 41,419 by 2041.
- iii) Proposing need based infrastructural facilities.
- iv) Ensuring orderly transport network for easy accessibility of people and smooth movement of goods and services
- v) Restructuring of land uses based on sectoral studies.
- vi) Setting up of zoning regulation on the proposed land use basis for controlled growth and development of economic activity and maintaining and upgrading quality of life.

The proposed land use plan has been prepared taking into consideration the minimum dislocation of existing land uses inter – relating the highest order of activities with planning areas and establishing home work place relationship. The plan prepared will determinate a physical base for massive new growth through a major programme of land acquisition and Installation of infrastructures.

**No construction zone:** No construction zone is proposed along the Beki River Beel area and Chantabari araa.

**Composite use:** Composite use area is proposed at Uttar Ganakgari along NH 31.

**TPS:** TPS-I is proposed at Uttar Ganakgari, TPS-II is proposed at Gellepara and Rampur Village and TPS-III is proposed at ward no.–V.

## **9 CHAPTER : PROPOSED PROJECT'S BRIEF AND TENTATIVE FUNDING SOURCE.**

### **Introduction**

An assessment of future population and its' future characteristics is the basic requirement for preparation of a development plan of a human settlement. However it is equally difficult proposition to work out exact estimates of future population of a settlement, because of the factors, on which the growth depends, cannot be foreseen accurately.

While arriving at the projected figure the following factors were taken into account:

- i) Natural growth of population of the area
- ii) Trend of migration of population from vast rural hinterland and expansion of saturation of adjoining Area.
- iii) Various development projects being taken up in the planning and its adjoining areas.
- iv) Availability of vacant land and existence physical barrier such as low, Marshy flood prone area.

For achieving this, future Urban planning decision need to be based on the judicious deposition of activities along with greater planning expediency to align its role for prosperity and planned urban development. The planning Decision of the Sorbhog Master Plan Area consciously aimed at sustained and planned city development . In order to generate positive urban development, the Master Plan would focus on conscious decisions to provide impetus and support to anticipated urbanization.

### **BASED ON EXISTING CONDITIONS AND PROJECTED REQUIREMENTS OF THE PLANNING AREA, IDENTIFY PRIORITY SECTORS AND PROJECT.**

The guiding Principle for preparation of Sorbhog Master Plan 2041 are derived from planning experience and challenges confronted in the city which includes as following.

- Local Economic and Development
- Environmentally and Ecological Suitable Development
- Sustainable and Integrated Transport System
- Inclusive and Collaborative Integrated Urban Development

### **Local Economic And Development**

It is an approach to combine economic development activities, urban planning, infrastructure development and social development activities to improve local conditions. Economic development and

growth are influenced by four factors-- Human Resources, Physical Capital, Natural Resources and Technology.

For Sorbhog Master Plan Area, The Goal of Local Economic Development are to create wealth, generate jobs, increase income and ultimately reduce poverty and improve the quality of life for both women and men in the locality.

Small and medium sized rural towns are an integral part of the local economic landscape .A significant and increasing proportion of the rural population lives in this locations. The employment opportunities available in such locations and the standard of living of its population are therefore important dimensions of local economic development. To improve the economic development in this region , promotion of different economic sector has to be carried out for diversification and strengthening of economic base of the city. Job-oriented land use have to be propagated in the Master Plan so that present level of unemployment in the region is drastically brought down. The social infrastructure of the area has to be emphasized as well so that the youths can be skilled, upskilled and reskilled in accordance with the needs of the present times, converting them into source of demographic dividends.

### **Environmental and Ecological Suitable Development**

The topography and drainage system of this region presents a unique challenge towards attaining the perfect balance between resource conservation and utilization. The incorporation of effective environment conservation and sustainability features will be an important aspect in the preparation of this Master plan. Environment conservation is a major issue that need to be tackled while planning the development of any area. Efficient measures towards conserving the natural surroundings will be adopted, since the balance between natural and man-made surroundings significantly enhances the quality of life of residents.

Protecting the irrigated and fertile land as well as forest area and development in the less fertile area, will be the aspect of the planning proposal. An appropriate balance between built and un-built areas is proposed to be established so as to provide a good quality of life to the people inhabiting the area.

### **Sustainable And Integrated Transport System**

Sorbhog Town is transforming in its physical and socio-economic dimension. Traffic conjection, Parking, insufficient road widths, decreasing Level Of Service (LOS) of most of the roads, inefficient public transport, etc. are some of the problems of urban transport and transport net work in Sorbhog Master Plan Area. Keeping all this shortcomings in view, the following proposals have been made in this Master Plan.

#### **Bus Terminus**

The intercity buses are playing from Sorbhog to Guwahati and Barpeta, Bongaigaon etc. having stoppage at Barpeta Road and Howly etc. Currently passengers are boarding busses directly from the kerb of the National Highway. This has also resulted in mushrooming of unauthorized shops along the National Highway. Such activities have increased the chances of accidents from high speed vehicles and



loss of life and property. A dedicated Bus Terminus for intermediary stoppage and for better regional connectivity has been proposed near Sorbhog at N.H. 31.

#### **Truck Terminus**

Sorbhog in the past has a rich history of Agro based Industries. Due to its better connectivity through road as well as availability of undeveloped land, it has the potential to become modern -day Industrial Hub. For the Industrial corridor, a Truck Terminus has been proposed along the NH-31, which will save the Industrial corridor as well as a parking spot for the vehicles going towards the state capital Guwahati. This will also stop the illegal parking on the roadsides which is an accidental hazard for the moving traffic on NH-31.

#### **Road widening and Extension**

The Sorbhog town has been extended on its Municipal boundaries from 4 ward to 10 ward. NH-31 connects Sobhog to Barpeta road, Nalbari on the east, Bongaigaon on the west . Other alternative roads are either unpaved or narrow in width. The existing roads are proposed to be upgraded in terms of ROW, capacity and other geometrics. The new roads need to be planned and designed for a higher level of service from their entry into Sorbhog MP.

#### **Airport**

The Sorbhog Airport was built at Kamar Char surrounded by amguri village , under Barnagar revenue circle in 1937 , during the British rule but later allegedly set on fire by freedom fighters before world war II to prevent entry of the British Army in Assam. According to the land record available with the Government, a plot at Kamar Char is still allotted for construction of an Airport. So it will be great initiative if the Govt. adopt a resolution to move to the centre to built an Airport there. The Airport will ensure fast transportation for people of lower Assam. The aerial distance between LGB Airport and Kamar Char is 160 KM, hence the aviation ministry allows construction of an Airport at the aerial distance of 150 km. Though a major portion of the plot fall under erosion of river Beki ,steps might be taken .Rest of the vacant plot may be converted into a tourist spot considering the history associated with it.





**Site of Ancient Sorbhog Airport**

#### **Inclusive and collaborative Integrated Urban Development**

The Sorbhog Master Plan Area is spread over 21 revenue villages which are predominantly rural in character. The countryside is viewed as a potential area of urbanization for Sorbhog Town in next two

to three decades. Being close to the state capital, and for its famous local Dairy Product, Robi & Vegetable products, the region presents a tremendous scope of growth. Having sound access to raw materials and skilled and semi-skilled manpower, Sorbhog can be elevated to commercial hub. The basic planning principle to create a sustainable blend of rural-urban continuum. The growth is proposed to be inclusive of all income groups integrating sectoral vision for historic development of the region.

### **Mixed Use Development Policy**

#### **Concept**

Any building having a combination of more than one use at a specific point of time is said to have 'mixed use'. For example, a building having one use in the ground floor and other use(s) is said to have mixed use. The mixed use shall not be misconstrued with the mixed use of a plot or parcel of a land. It is a vertical land use change of a building across its floors rather than a change over space laterally. Mixed use is always a combination of main use and uses which are incidental to the main use. While the main use is defined as the primary use, the incidental use is construed as Secondary use. It is an important planning tool to accommodate the unforeseen land use changes resulting because of competitive market forces in the city centres and along important streets. Mixed use has also become inevitable because of limited scope of horizontal expansion as well as scarcity of land in such areas. For example commercialization along main arterials within the residential areas is an illustration of land use conversion resulting because of such factors. The main requisite underlined for the mixed use model is the compatibility of the uses in terms of their type and intensity. In no case, the uses defined as obnoxious or hazardous in this master plan under land use regulations shall be permitted under mixed use category. The secondary use has to be essentially subsidiary or conforming in nature like convenient shopping, primary health and education facilities and basic public services and amenities having manageable impact on the surrounding land use. However, this trend has to be regulated and restricted as prescribed in this Master Plan for numerous benefits and as such, has been proposed of this Master Plan defined objectively to avoid its misuse while issuing building permissions. For purposes of this Master Plan, mixed use is defined where-

In case of mixed use distribution, the secondary use shall be restricted to one floor only (preferably the ground floor) which is more susceptible to land use changes. While issuing the mixed use permits, care should be taken to consider the secondary use as ancillary use to the main use in size and scale within the structure.

### **Composite Mixed Land Use Model**

As a policy measure, the proposed land use is viewed as a Composite Use broadly segregated and integrated across sectoral uses. As an inherent flexibility in the Proposed Land use Plan, it is proposed to calibrate and to integrate the Proposed Land use to the hierarchy of road net work in a horizontal mix,

however, essentially segregating the hazardous and obnoxious uses. The policy applicable to those uses which have been made permissible in a particular Land use.

In this Master Plan, a composite Mixed Land Use Model is envisaged along the designated roads based on their proposed RoW.

### **Fund Requirement For Each Sector/Project Identified Under The Sectors**

#### **Roads**

- **National Highways-** The Government of India passed the National Highway Act, 1956, to take the responsibility of building and maintaining the National Highway.
- **State Road** - These roads are constructed and maintained by the Public Works Department (Roads).
  1. "Assam Road Maintenance Policy" and " Assam Road Maintenance Fund Rule" came into force with effect from 25 September, 2014. Its main objective are to make available funds to Assam State Road Board (ASRB) on a sustainable and dependable basis for maintenance of State Roads.
  2. "Assam State Road Project " is an externally Aided Project (EAP) implemented for by he Public Works Road Department (PWRD) through the ASRB for improvement of State Highways (SH) and Major District Roads (MDR) in the state.
  3. The Central Road Fund (CRF) was established by the Parliament by law (Central Road Fund Act 2000) in order to fund the development of State Highways, Major District Road, etc. The Fund is utilized for project relating to the construction and development of State Roads including roads of inter-state connectivity and of economic importance.
- **Village Roads-** Village roads are maintained by the Zilla Parishads and PWD. Prdhan Mantri Gram Sadak Yojana is a notable scheme launched by the Government Of India to provide good all-weather road connectivity to all villages in India. In 2015, it was announced that the Central Government would contribute 60% of the funds and the State Government would contribute 40% of the fund.

#### **City Beautification**

City Beautification project like public parks, river front development multi-utility buildings can be taken into consideration once the town is covered under City Infrastructure Development Fund (CIDF). PPP models should also be explored to make the projects more sustainable.

**Identify Land Site For Proposals--** In Case Of Government Land, Inventory Of Municipal Land, State Govt./ Govt. Agency Owned Land, etc And Plan For Acquiring/ Leasing The Same.

This Master Plan proposes Negotiated Land Acquisition as an innovation in land acquisition procedures for speedy urban development in consultation with various Govt. Depts.

### **Concept Of Land Polling -**

As per the survey conducted by Town and Country Planning, Barpeta, it was observed that few neighbourhoods in the villages included in the Sorbhog MP are not deficient of housing but these are cases of non development of these areas may be due to lack of awareness of education. So the people are staying in houses which are made of locally available materials. The economic conditions and livelihood for these families still is agriculture and day to day informal business. The main need of the hour is to impart awareness among these masses that where they are residing in not sustainable and pose a threat to their lives. There is an urgent need to upgrade these houses as they have the tenure ship but their economic progress make it hard for them to do the same.

**Indicative Sources Of Fund- Specific Central Scheme Funds ( 10%, NLCPR, AMRUT, INFRASTRUCTURE DEVELOPMENT FUND, ETC) Assam Finance Commission Funds, CM'S Special Package, Public Private Participation, Loan From ( Externally Aided Project, Jica- World Bank -ADB), Etc.**

Availability of adequate funds is an important determinant for successful implementation of the plan proposals. While conventional pattern of project financing is being in transition , the private investments and public private partnership modes of infrastructure development assumes greater significance. This apart, the programmes of the national Government provides greater opportunities for improving the status of infrastructure and service delivery. Hence, it is the responsibility of every development agency concerned to take initiative to draw maximum funding for the plan implementation.

### **National Programmes and Funding Agencies Available For The Resources In Urban Area.**

Integrated Development of small and medium town programme, is a programme of national importance, which has identified the sectors and projects eligible for assistance, which include--

- i. Water supply (including desalination plants) and sanitation.
- ii. Sewerage and Solid Waste Management.
- iii. Construction and improvement of drains /storm water drains.
- iv. Construction / Up-gradation of roads, highways/ express highways.
- v. Parking lots/spaces on public private partnership basis.
- vi. Development of heritage areas.
- vii. Prevention and rehabilitation of soil erosion/landslides only in case of special category states where such problems are common and
- viii. Preservation of water bodies.

**Current Project details of Sorbhog MP area.**

Sl. No.	Name of Scheme	Project Details
1	14th Finance 2018-19 during Year 2020-21	1.Constr. of CC paver Block Road 2. Constr. of RCC Box culvert at Bayanpara Rampur link Road Ward No. 1. 3. Renovation of Barnagar Bhattadev Library under Sorbhog MB.
2	15th Finance 2018-19 during Year 2020-21	1. Constr. of open market shade at Sorbhog Bazaar (Unit A - Unit F). 2. Constr. of CC Road with side drain at Sorbhog market area.
3	PMAY (U)	1. No. of houses approved- 748 2. No. of houses grounded- 588

Moreover a site for HOUSING FOR ALL SCHEME has been proposed in Sorbhog MP Area.

## CHAPTER 10: DISASTER PLAN

### 10.1: FLOOD:

As the monsoon sweeps through North east India, much of Assam is under water yet again. Assam with its vast network of rivers are more prone to natural disasters like flood and erosion, which has a negative impact on overall development of the State. The Brahmaputra and Barak rivers with more than 50 numbers of tributaries feeding them, causes the flood devastation in the monsoon period each year. The flood and erosion problems of Assam is singularly different from other states so far as extent and duration of flooding and magnitude of erosion is concerned and is probably the most acute and unique in the country. During the year 2004 and 2014 the South bank tributaries of Brahmaputra in lower Assam, experienced flash floods of high magnitude. Barpeta is one of the disastrous flood prone district of Assam. The Sorbhog Master plan areas are prone to severe flood hazard by the rivers Beki & Manas rivers.



The flood havoc is more pronounced if simultaneously the mighty Brahmaputra is in spate. The measures taken so far to mitigate flood problem in the district are now proved to be inadequate. The Sorbhog Master Plan area of Barpeta District covers an area of 39.61 sq. km. The Sorbhog areas have fascinating diversified landscape sloping from north to south which includes highlands covered by forests, plain fertile lands suitable for agricultural activities and low-lying areas containing water bodies and swamps. Flood is a perennial problem and all kinds of common flood damages prevail in the district.



Flood cause large scale damages to the socio-economic life of the people as well as to the ecology and environment of the district to a certain extent. During monsoon period these rivers are over loaded due to heavy and continuous rain spells.

The River Beki is one of the most important tributary of the mighty Brahmaputra River, it touches Sorbhog MB areas. Physical as well as human-induced causes are responsible for the causes of floods in these respective MB areas. Physical causes are- Geological and Tectonic causes, meteorological causes and Physiographic causes etc. Human-induced causes especially- building activity, eventual urbanisation, construction of bridges/dams, deforestation, land-use changes etc. Basically this region mainly faces flash floods due to heavy spells of rain.

The major impact of floods are-

1. Loss of human being and livestock.
2. Damage to the crops creating scarcity of food grains.
3. Disrupting all sorts of communication such as- roads/railways.
4. Damage to the infrastructure in flood prone areas.
5. Outbreak of epidemic.
6. Shortage of drinking water, disruption of sanitary, water supply and electricity.
7. Sediments occur at paddy fields losing its fertility.
8. Level of river rises as a result of erosion of river bank after every flood.
9. River Dolphin (Sihu), a rare species living in the Brahmaputra River is going to extinct day by day due to devastating flood every year.
10. The inland fisheries of Sorbhog MB areas are greatly affected.

## **10.2. EARTHQUAKE:**

Earthquake is another most important disaster in Assam. As per the latest seismic zoning map of India, Sorbhog in Barpeta District falls under High Risk Zone-v, where a maximum intensity can be expected. The notable great earthquakes which was responsible for causing great damages in Assam are-1897s, 1950s, 1984s, 2004 etc.

The major impacts of earthquake are-

1. Change in ecological and geographical balances.
2. Loss of human life, livestock & properties.
3. Disruption of all types of communication including road/ railway and mobile network & electricity.
4. Damage to the infrastructures like- buildings, roads, bridges, plants, factories, oil fields etc.
5. The mining process is badly damaged.
6. Catch fire in the building.
7. Outbreak of epidemic.
8. Shortage of food, drinking water, damage of water supply, sanitary
9. Landslide/erosion may occur at hilly places and erosion in plain areas.
10. Overall economy of the state will be greatly hampered and people become panic and fear.

### **10.3. OTHERS:**

#### **10.3.1: SOIL EROSION:**

The soil erosion in Sorbhog MB is mainly caused by the River Beki. The people suffers a lot in every year for this erosion of River Beki.

#### **10.3.2: DEFORESTATION:**

Assam will loss massive forest cover by 2028. Predicting such loss, the Indian Institute of Remote Sensing (IIRS) has identified increasing human population and subsequent demand on land for cultivation as the major reasons for forest cover depletion in Sorbhog.

#### **10.3.3: THUNDERSTORM:**

A severe cyclonic storm, locally called 'Bordoisila' that is usually experienced at this time of the year, lashed several parts of Assam including Sorbhog MB. It damages houses, blew away the tin roofs of a large number of houses, uprooted trees and electric poles and snapped power lines.



## **STANDARD OPERATIONAL PROCEDURE (SOP) ON DISASTER**

SOP is nothing but a very simplified process that can be executed during or after any type of disaster. organisation. They document the way activities are to be performed to facilitate consistent conformance to technical & quality system requirements and to support data quality SOP details the regularly recurring work processes that are to be conducted or followed within an.

- \* Written guideline that precisely defines how operations are to be carried out.

- \* An organisational directive that establishes a standard course of action.

- \* Written guidelines that explain what is expected and required of the personal.

- \* Standardisation of activities-

- ▶ Identify planned and agreed upon roles & actions.

- ▶ Promotes coordination and communication amongst personal.

- ▶ Simply decision making during potentially stressful conditions.

The main objective/ purpose of SOP are- people need consistency to achieve top performance. SOP will reduce system variation which is the enemy of efficiency and quality control. Everything should be clearly written in SOP so that employee can coach and support each other if there is documentation available or exactly how various tasks must be done and everyone knows what their co-workers are supposed to be doing. During post disaster period, this can also help to generate a more co-operative team approach to get all the daily task done correctly, everyday.

If a department is having a good SOP, the tasks to be executed by each and every employee of the department becomes mandatory. So during disaster, everyone will perform his duty as per SOP. No one will have to wait to get order from superior officer. SOP itself a written order that has to be followed by one strictly. There is a lot of scope for this SOP. If a department is having a good SOP, it can perform its duty satisfactorily during or post disaster period.

The nodal officer is the overall in-charge of disaster management plan. He will communicate with DDMA during any type of disaster. Under his guidance, teams are to be formed which will act as per discussion during disaster period such teams are- Awareness team, Search & Rescue team, Damage assessment team, Relief camp management team and Repair & Restoration team etc. The work/ tasks of these will depend on various phase, which are discussed as follows-

**1. PRE-DISASTER:** Capacity building (Training) and sensitization among departmental official & staff. Pre preparedness in case of a disaster like- flood, earthquake etc., collection of some construction materials like- bamboo, rope, wire, wood, sand and cement bags, first aid kit etc. will be kept ready. Coordination with District Disaster Management authority. Dissemination of information for early warning to general public with the Aegis of DDMA.

Private building is to be identified suitable for use for shelters by the department and circle. Prepare the list of such buildings and submit them to District Authorities. Ensure that buildings codes are strictly followed by public, they should be made mandatory. Ensure that the new construction does not block natural drainage lines and also suitable guidelines for retrofitting may be issued.

**2. DURING DISASTER:** During disaster this department will provide technical manpower support to restore essential services and coordinate with DDMA. Alerts the field teams, the teams have to start working as per assigned to each team. Enquiring the availability of safe shelter for affected people and also enquire the availability of machineries and requesting the Owners to keep the machinery ready for deployment where necessary. Supply water, first aid and then contact with SOP of other department. Rescue the persons which are badly affected. Deputing the field staff from non-affected areas to assist staffs in likely affected areas. Staff on leave should return to headquarters and no leave shall be sanctioned at the time of disaster.

**3. POST DISASTER:** After the disaster this department will make assessment of destruction and report to District Administration. Identification of rehabilitation site. The affected areas should be surveyed in detail. If possible, it is to be tried to repair the damage structures by retrofitting. If it is not possible the matter should be discussed with district administration for demolition of the structure. Report of damages should be prepared. Estimates for repairing/ renovation should be prepared and to be submitted for financial sanction.

The affected people should be given shelter in a safe and hygienic place available with all temporary facilities like- water, toilet etc. separately for both men and women as per as possible. Proper implementation and enforcement of Assam Notified Urban Area Building Rules-2014 (ANUABR) & sensitization among stakeholders engaged for constructional work/ owners to use disaster resistant technologies.

## **11 CHAPTER UNIFORM ZONING REGULATIONS FOR SORBHOG MASTER PLAN AREA**

### **11.1 PLAN IMPLEMENTATION**

#### **11.1.1 Zoning Plan**

Zoning means the method of accomplishing a suitable arrangement of different land use components of a town. Although it is an integral part of the overall plan yet it does not mean the only arrangement. Good zoning ensures right use of available land. In order to achieve the goals and objectives of the plan a zoning plan is prepared earmarking different use areas with suitable boundaries. This Zoning plan should be read in conjunction with the land use plan and zoning regulations appended herewith.

#### **11.1.2 Zoning Regulations**

Zoning Regulations play a very important role in controlling and promoting urban development and redevelopment in rational lines. They are also useful in limiting urban growth and in a broader sense can also be used for laying down broad directives in regional plan. Zoning regulations form an integral part of any Master Plan and these have been used extensively to control development of urban areas.

Zoning Regulations have been widely accepted as legal instrument of control and promotion of development and in fact it is the Zoning regulation that an ordinary developer comes into contact with while undertaking the development within the framework of any Master Plan. Thus, these regulations can do a great service in portraying the intension of the Master Plan and promotion its objectives.

Zoning Regulations would help in controlling density of development and land use in each zone in appropriate manner. Zoning Regulations for Sorbhog Master Plan Area will follow the uniform zoning regulation as approved and notified by the Government vide No.226, Dispur the 16th December, 2000 published in the Assam Gazette Extra-Ordinary on 16th December, 2000.

#### **11.1.3 PLAN ADMINISTRATION**

The Master Plan and Zoning Regulation for Sorbhog as presented here contains the broad policies and programs for improvement and development of greater Sorbhog area up to the year 2041. The administration of this plan from its initiation to the realization will be carried out within the frame work of the Assam Town & Country Planning Act, of 1956 as amended from time to time.

The Town & Country Planning Organization of the State Government besides preparation of the Master Plan and zoning Regulation for Sorbhog will provide necessary guidance by rendering technical advice and by arranging proper scrutiny of the development schemes so as to ensure that the proposed development of Sorbhog conform to the proposals contained in the Master Plan and Zoning Regulations.

Section 8 of Assam Town & Country Planning Act, 1959 empowers the Government to constitute a Development Authority for the Sorbhog Master Plan area for enforcement control and implementation of development proposals as envisages in the Sorbhog Master Plan. As per Section 13 of the same act all

development to be undertaken within the Sorbhog Master Plan area will be subjected to technical scrutiny and approval from the development authority so as to conform with the Master Plan.

#### **11.1.4 FISCAL PLAN**

There may be some changes of this Draft Master Plan for Sorbhog and therefore, no fiscal plan has been worked out at this stage. The final Master Plan when completed would provide a basis for preparation of five yearly development programs and yearly fiscal plans for implementation.

#### **11.1.5 CONCLUSION**

Planning is a continuous process and the preparation of plan implies its actual translation into reality. The Master Plan for Sorbhog is not just a land use classification elaboration but a vision document to make Sorbhog a more sustainable city. Community participation in decision making process in the implementation of the Master Plan will make it a success.

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